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ABSTRACT

This practicum report concerns the elementary mathematics management program initiated by the Coffee County, Georgia, School System which provides for diagnostic and prescriptive learning through the use of a continuous progress plan. Learning objectives' checklists (guides) were constructed for levels Readiness through 6c. Tests were constructed by the teachers in the criterion-referenced format. Students were allowed to progress to the next level of proficiency as they made sufficient pre-determined percentage scores on the tests. Diagnostic sheets indicated student weaknesses in specific areas and signaled reteaching on same material, regrouping and/or other specific instructional prescriptions to remedy the deficient area(s). Management and monitoring techniques included observations and reporting forms that affected all personnel involved. External (county) tests were administered and correlated with the teacher-made tests and standardized and State Criterion-Referenced Tests. Also, a new reporting system was devised that would be consistent with the new continuous progress format. The progress of third age-grade math students from 2.9 (pretest) to 3.79 (posttest) with a learning rate increase of 48.9% (over three previous years) was significant. Another significant success was the fact that the district and four schools showed mathematical improvements as evaluated by State Board of Education Standards. (Author/MN)

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ED160344

DEVELOPING AND IMPLEMENTING ELEMENTARY MATH MANAGEMENT A COOPERATIVE IMPROVEMENT SYSTEM

by

U.S. DEPARTMENT OF HEALTH,
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ABSTRACT

AUTHOR	Williams, Julian A.
TITLE	Developing and Implementing Elementary Math Management - A Cooperative Improvement System
DESCRIPTORS	Behavioral Objectives, Educational Objectives, Criterion-Referenced Tests, Guides, Measurement, Norm-Referenced Tests, Test Construction, Instructional Systems, Management Systems, Program Administration, Program Design, Program Development, Skills, Quality Control, Systems Approach, Continuous Progress Plan, Program Evaluation, Progress Reporting

ABSTRACT

The Coffee County, Georgia, School System initiated an elementary mathematics management program which provided for diagnostic and prescriptive learning through the use of a continuous progress plan. Learning objectives' checklists (guides) were constructed for levels Readiness through 6c. Tests were constructed by the teachers in the criterion-referenced format. Students were allowed to progress to the next level of proficiency as they made sufficient pre-determined percentage scores on the tests. Diagnostic sheets indicated student weaknesses in specific areas and signaled reteaching on same material, regrouping and/or other specific instructional prescriptions to remedy the deficient area(s). Management and monitoring techniques included observations and reporting forms that affected all personnel involved. External (county) tests were administered and correlated with the teacher-made tests and standardized and State Criterion-Referenced Tests. Also, a new reporting system was devised that would be consistent with the new continuous progress format. The guide is not a part of the Practicum Report but was submitted separately. Success of the project was measured, to a great degree, on the accomplishment of four objectives stated in the project. The objectives contained plural aspects and it was substantiated that one objective was fully met and three partially met. The progress of third age-grade math students from 2.9 (pretest) to 3.79 (posttest) with a learning rate increase of 48.9% (over three previous years) was significant. Another significant success was the fact that the district and four schools showed math improvements as evaluated by State Board of Education Standards.

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CHAPTER I

Introduction

BACKGROUND INFORMATION

The Coffee County, Georgia, School System is composed of approximately 5,400 students and 300 teachers. Teacher aides, clerks, lunchroom personnel, custodial employees and other personnel bring the total number of personnel to approximately 550. Supervisory personnel include one county superintendent, an assistant superintendent and personnel heading up curriculum, pupil personnel services, special education, and federal programs. There are nine schools: three high schools, one junior high and seven elementary schools (two of the high schools have elementary schools on the same campuses). The racial ratio is 65% white and 35% black. About 62% of the children are receiving benefits of the free and reduced federally subsidized lunch program. Therefore, the area could be classified as low income. Test scores are slightly below State scores and State scores fall slightly below national norms.

IDENTIFYING THE PROBLEM

For some twenty years Coffee County has been on a "non-graded" system in mathematics instruction in the elementary schools. The idea was good but not properly implemented. The program was designed to let students advance as they made progress. Two blocks, Primary and Intermediate, were designated for grades (age-grades) 1-6.

By the plan, a student would conceivably finish the three year

Primary Block in two years, or it might take as long as four. The same formula existed for the Intermediate Block.

In reality, though, students began to be "socially" promoted without any regard for the plan. Nebulous "1's", doing more than expected relative to ability, "2's", doing expected work relative to ability, "3's", doing less than expected relative to ability, and "4's", doing much less than expected relative to ability, became many things to many people. As a result, any standardized approach to progress reporting was absent. The resulting chaos lowered expectancies and morale.

Test scores also began to decline. A needs assessment was done. Several important areas were identified:

A. Need for improvement toward becoming "Standard" in test performance and maintaining the highest possible performance indicators. A great impetus came in 1974-75 when the State Standards section of the State Board of Education imposed standards for test scores. By these standards a school could become or be "Standard" by three routes: (1) equal or exceed the previous year's State average, (2) make progress for one of two previous years, or (3) have a plan for improving deficient scores that met neither (1) or (2) above and be cited and visited by a State visiting assessment team (to insure that the plan was being implemented). Coffee County desired to be Standard by method (1) or method (2).

In 1974, Coffee County had one school that was Standard under the criteria desired. In 1975, two schools were Standard by these criteria.

The county (overall average of all schools) was also Standard by virtue of making progress.

Subsequently, the school system endeavored to increase math scores and become Standard in as many schools as possible, Some progress had been made from 1974-75 to 1975-76 (above) and this was attributed to work on testing: item analysis, study of different test formats and test results.

B. Need for general improvement of academic performance in math. Coffee County was consistently lagging behind State and National averages in math scores for elementary students. The district stayed from one to two months below the State. In 1974-75 the district score was 3.5, the State's was 3.7, and the National was 4.1.

C. Need as expressed by teachers of the county during recent in-service briefing on proposed new management system for mathematics: A system questionnaire showed 59.2% or 87 of 147 K-6 teachers saying "I think the change to the elementary math management system will improve our instructional program to a: Substantial degree - 43 or 29.3% and to a Great degree - 44 or 29.9%." The remainder of the survey showed a preponderance of evidence of need in support of correct expectations and consistency in indicating reliable performance standards.

D. Need for management systems at both the State and local levels: The Governor and Lieutenant-Governor of the State of Georgia, acting upon recommendations of the Task Force for Education, asked the legislature to establish "a division of the State Department of Education to be designated as an instructional management section". It was agreed that this was a definite need and that the district would not have quality programs until effective plans of management were effectively carried out.

E. Need for stabilizing and updating State Standards. Valuable input was seen as necessary to the updating of Standards. The State Board members felt a genuine need for this. In fact one Board Member of the State said: "as the Standards are revised, I would like to see input from the local school officials".

F. Need for improvement through management as expressed by the fact that Title I employed 10 teachers and teacher aides to teach criterion-based mathematics with techniques employing management characteristics. This effort is concentrated in the elementary grades.

G. The need for improvement through management as expressed by the State employing 18 Compensatory Education Aides in K-4 to aid the teacher in individualized, small group and specified task teaching and reinforcement.

H. The need for management characteristics expressed by the State Board of Education in the First of their Sixteen Goals for Education in Georgia: "The basics of reading, writing, and mathematics, the objective of which is that at every level of educational achievement a pupil will be able to conclusively demonstrate that he possesses the skills necessary to advance him to the next level.."

I. The need expressed by the press: "So it's good news for all Georgia students and parents that a joint legislative committee plans to recommend that the state school board be empowered to impose "minimum standards of education" on all grades in the private schools (as well as in the public schools, which already have them)" - Macon Telegraph.

J. The concurrent need, the need to update our offerings in the process, to place career education and metric system elements into the curriculum in a manageable mode.

K. The need, mentioned above, that the State saw as they assigned an assessment team to study the plans for improving the system's math program.

L. The need Coffee County's Board of Education recognized as they approved the plans for developing and implementing math management in the elementary levels.

M. The overall need, expressed in various ways by school personnel, students and parents. This need is seen as a plea for a central, county-wide, consistent, systematic management system for mathematics for the improvement of math instruction in the county. It is especially noteworthy that parents, students and even school officials felt that one of the sub-needs or attendant needs was the development of a reporting system that would be consistent with the new management system for mathematics.

CHAPTER II

OBJECTIVES

A. The development and implementation of an elementary math management system shall result in increasing third age-grade achievement to 3.05, fourth age-grade achievement to 3.78, and the fourth age-grade Criterion-Referenced Test percentage achievement to 67.5%.

The third age-grade achievement expected increase (this year over last) was based upon a 5% increase - 2.9 to 3.05 (3 years and a half-month). The fourth age-grade expectation was also based upon a 5% increase - 3.6 to 3.78. The fourth age-grade Criterion-Referenced Test percentage increase was also based upon an expected gain of 5% - 62.5% to 67.5%.

B. A math management system for elementary math will provide a mechanism for identifying the mastery of specific math skills, resulting in a .60 (or greater) Spearman Rank Order correlation between usage and testing in the respective schools.

This objective attempted to measure the correlation between usage of the math management system and various aspects of testing. These factors included a Score Expectancy Factor (high Intelligence Quotient score would indicate a high test score expectancy; low I Q score would predict a low test score); the Actual Percentage State Score Factor (percentage correct items on State Criterion-Referenced Test); and, the

Gain-Loss (State Test Score) Over Last Year Factor (how much a school gained or lost as compared with last year's test score). This analysis is found in the evaluation section of this report.

C. Coffee County elementary (K-6) math students and school personnel will show improvement as evidenced by at least three elementary schools becoming Standard in achievement and a decrease of 50% of number of schools cited for deficiencies by the State Assessment Team.

As explained under comments on needs assessment, a school could become Standard by (1) equaling or exceeding the previous year's State average, (2) making progress for one of two previous years, or (3) having a plan for improving deficient scores and being cited by the State Visiting Assessment Team. It thus became an objective to attempt to substantially decrease the number of schools being cited for deficient scores.

D. A new reporting system will evolve which will be acceptable to a majority (more than 50%) of the schools, involved community and students, and school board.

As explained under Identifying the Problem, the schools of Coffee County sought a new reporting system and report card. This reporting system and report card would also complement and complete the new math management system for the elementary schools.

Involvement from all sectors was encouraged for necessary input for the reporting system and report card selection process.

CHAPTER III

DEVELOPMENT OF A STRATEGY

The advent of new math, social change and non-graded classes in age-grade centers posed a challenge for the elementary schools of Coffee County, Georgia. How would the schools adapt to all these changes and maintain their standards of quality? How would rural schools (combination schools with K-12 age-grade students) teach and evaluate their students? What instructional strategies would a system employ to get a fair and educationally sound program of academic improvement? How could the schools manage elementary instruction?

The first impulse of administrators and teachers was to completely revise the existing curriculum. This opinion began to change with a visit to Homerville, Georgia.[1] The lone elementary school of that small city had revised two areas, language arts and mathematics. It had taken three full years to do a thorough job. At the time of the visitation the latest revisions had just been completed. The Austell, Georgia, schools[2] had experienced similar time restrictions. It was learned that systems desiring genuine and effective instructional change should consider focusing upon one area of need. By doing this the selected area could be revised for optimum improvements. Revision could be done analytically and without the distraction of another subject area vying for time and attention.

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[1] Interview with Joe Brooks, Homerville, Ga., October 1971.

[2] Interview with Charles Sprayberry, Austell, Ga., September 1976.

Other schools were visited that offered options of traditional learning (State adopted textbooks in strictly graded format) and ultra-modern techniques (computer print-outs and machine programs). The Camden County Schools represented the former[3], and the Bacon County Schools of Alma, Georgia, the latter.[4] At Bacon County the Coffee County personnel saw how computers assisted in the implementation of Project PLAN.[5] Project PLAN (Program for Learning in Accordance with Needs) is a model which finds its foundations on behavioral objectives, classification of learning (affective, cognitive, and psychomotor) categories, and computer-assisted feedback (test results, future assignments, and statistics for teachers to use in helping students plan their educational objectives). It is said that the computer is not necessary for PLAN, but operating without one would almost be cost prohibitive and counterproductive.[6] Much of the teacher's job of record keeping in PLAN is done by the computer. But, the computer can be expensive for a system already lacking funds for general operations. The Bacon County Schools faced this problem. Any program should be planned, if possible, for long-range flexibility. If State and/or local assurances could have been developed, the schools of Alma would not have suffered as federal dollars moved away. However, this was not done and the schools had to revert to traditional approaches. It is noteworthy to mention that some schools patterned individualization efforts on the collective works of Flanagan, Shanner and Mager[7] and even though they did not adopt PLAN they produced concepts such as pooling objectives and test items.[8] Other prominent sources in this realm include B. S. Bloom[9] and D. R. Krathwohl.[10] Examples of these types of schools visited by the Coffee County personnel included the Glynn County Schools of Brunswick, Georgia.[11] A specific school, St. Simons Island School,[12] demonstrated the PLAN techniques (without computer) through the manual mode of teacher management. It was since observed that the Glynn Schools had adapted their program to the computer.

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[3] Interview with David Rainer, Kingsland, Ga., 5 April 1973.

[4] Interview with Wendell Tanner, Alma, Georgia, 6 December 1976.

[5] John C. Flanagan, "Individualizing Education", in Developmental Efforts in Individualized Learning, ed. Robert A. Weisgerber (Palo Alto: American Institutes for Research, 1971), p. 4.

[6] Eldon Patterson Patterson and Geraldine Johnson, Don't Program the World -- PLAN* It (Bethesda, Md.: ERIC Reproduction Service, ED 095 870, 1974), p.2.

Another model that lends itself to individualization is I P I (Individually Prescribed Instruction). It is in this model that the pre-assessment renders the level of capability of the student.

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[7] Robert F. Mager, John Flanagan, and William Shanner, Behavioral Objectives, A Guide to Individualizing Learning (Palo Alto, California: Westinghouse Learning Corporation, 1971).

[8] Marcus Lieberman et al., Primary Mathematics: Behavioral Objectives and Test Items (Bethesda, Md.: ERIC Reproduction Service, ED 066 494, 1972), p. 3.

[9] B. S. Bloom et al., Taxonomy of Educational Objectives. Handbook I: Cognitive Domain (New York: David McKay, Inc., 1956).

[10] D. R. Krathwohl et al., Taxonomy of Educational Objectives. Handbook II: Affective Domain (New York: David McKay, Inc., 1956).

[11] Interview with Charlie George, Brunswick, Ga., April 1974.

[12] Interview with Dene Barone, St. Simons Island, Ga., April 1974.

The student is then programmed through a prescription of instruction - either by computer (automated) or sans computer (non-automated).[13] One of the chief disadvantages noted at the Pine Grove School in Lowndes County, Georgia, was the fact that some students hid their materials but claimed the evaluators were checking them.[14] Quicker feedback via computer would remedy this problem. However, it would seem from the literature and personal observations of ongoing programs that depersonalization is a major negative factor to be contended with in management systems, especially those employing machines to a great extent. If educators are to effectively marshal the forces and resources around them they must not ever think computers will come universally upon the scene to do trivia and miscellanea. Or, simply to say the advent of the computer will leave the more sensitive and significant teaching tasks to human teachers is not enough. The process of humanizing instruction will not occur by chance[15] and must bear the impressions of human involvement and commitment.

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[13] Claire Moshy, Teaching in I P I Mathematics, Volumes I - VI (Bethesda, Md.: ERIC Reproduction Service, ED 030 584, 1969), p. 14.

[14] Interview with Principal Anderson, Pine Grove, Ga., November 1971.

[15] John I. Goodlad, "The Future of Learning and Teaching", in Developmental Efforts in Individualized Learning, ed. Robert A. Weisgerber (Palo Alto, California: American Institutes for Research, 1971), p. 350.

Research also included the model of COMP (Conceptually Oriented Mathematics Program).[16] Dr. Robert Bazzle, then at the University of Georgia, introduced us to this. The School-Based Program Management System in Florida[17] was also studied as was the format of MBO operating at the college level.[18] Other individualized approaches, including the Unipac[19] system, were studied. Collectively and respectively, these strategies gave the Coffee County School System data on concept-oriented mathematics, math management at teacher and principal levels, college management of varied tasks (instructional, operational, and fiscal) and student-centered programs.

After studying programs, components, and concepts the Coffee County personnel decided to study more about those programs based upon defined techniques of management. The philosophy of nongradedness in the restrictions of city age-grade centers and rural combination schools (K-12) would be most effective with the correct mixture of structure and flexibility. The structure could come from a management format employing criterion-referenced objectives and tests. The identification of needs peculiar to the individual, the writing of teacher expectations (objectives and test items), and the setting of performance indicators for diagnostic use, continuous progress evaluations and overall academic rating would most clearly characterize an effective format for elementary math management.[20] A monitoring process is built into the format and has the characteristics of record-keeping capabilities, staff development indicators for staff improvement and curriculum indicators for content and instructional changes. These items, along with a revised progress reporting system and report card, could give the school system a concept capable of being, in essence, a management system.[21]

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[16] Columbia Public Schools, Missouri, Conceptually Oriented Mathematics Program (COMP) (Bethesda, Md.: ERIC Document Reproduction Service, ED 104 728, 1973).

[17] Florida Department of Education, School-Based Management System (Tallahassee, Florida: Florida Educational Research and Development Program, 1974).

[18] Arthur Deegan and Roger Fritz, M B O Goes to College (Boulder, Colorado: University of Colorado, 1975), p. 201.

[19] Wisconsin Consortium for Individualized Learning, Guidebook for Teacher Use in Individualizing Instruction Through Use of Unipacs (Bethesda, Md.: ERIC Document Reproduction Service, ED 079 946, 1971), p. 13.

The reporting system change became essential as the school system personnel realized the importance of the revision in the instructional management format. In the past school systems were strictly graded and students were promoted or retained. There existed a sharp separation of high achievers and low achievers.[22] As social change came to the schools there was a mediatory need for nondiscrimination and the inclusion of all students in all programs and activities.

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[20] John Easter el al., Comprehensive Achievement Monitoring (CAM) in the Sequoia Union High School District (Bethesda, Md.: ERIC Document Reproduction Service, ED 084 818, 1972), p. I-3.

[21] Bruce H. Read, Developing Criterion-Referenced Programs (Bethesda, Md.: ERIC Document Reproduction Service, ED 125 098, 1975).

[22] Ronald C. Doll, "The Heat Is On", in The Individual and Education, eds. Frederick M. Raubinger and Harold G. Rowe (New York: The Macmillan Co., 1968), p. 156.

Failure and retention as viewed in a context of stigma did not seem to agree with the mandate that

> "no person of the United States shall, on the basis of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance".[23]

Thus, the nongraded school assumed forward movement in achievement and also encouraged the practice of moving students along with their age peers. The concept also emphasized the development of a more positive self-image for the individual student as he moves along at his own rate of progress.[24] The approach accentuated the position that every human being is unique and constantly changing. Every child can be said to have potential talent of some degree and kind.[25] However, with all the positive characteristics, at least three were missing: (1) minimum levels of performance designed to allow parents, teachers and students knowledge of how students performed on objectives of courses of study, (2) the objectives of the courses of study, and (3) the tests to help measure and reinforce the objectives. Ability grouping had been tried in many schools, graded and nongraded, but many times these groupings were done without sufficient data and in contradiction to the spirit, if not the letter, of the law.[26]

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[23] 88th Congress, Public Law 88 - 352. H.R. 7152 (1964).

[24] Stuart Dean, "Nongraded Schools", Education Briefs, No. 1 (July 1964), p. 16.

[25] John Hersey, Intelligence, Choice and Consent (New York: The Woodrow Wilson Foundation, 1959), p. 13.

It became apparent to the Coffee County personnel that a pupil progress evaluation scheme had to be worked out to comply with management techniques, meeting the needs of the learners, legal aspects, and the restrictions of the present housing dilemma. Not too many extra students could be absorbed into a system where classroom space was already severely limited. The new reporting system must agree with the management philosophy that the objectives of the curriculum area be clearly defined so that the class(es) may be better taught.[27]

Marks, or progress indicators, should reflect some progress/expectancy mode. An undue emphasis on grade achievement may create a desire for good grades (marks), rather than a desire for the acquisition of knowledge and its mastery.[28] On the other hand, if minimum levels of achievement were not identified, there could exist an academic wandering characterized by a lack of desire to attain.

From the observations and the search of the literature the criterion-referenced systems seemed compatible with the philosophy of the county, the need for changes in the reporting system and the county's leadership stance. This stance is closely related to the Niedermeyer model[29] because both tried to obtain: (1) a vehicle for agreeing on achievement outcomes and standards, (2) teacher and administration sharing achievement information and (3) working together to improve instruction per evidence of identified learning deficiencies. The same author, Niedermeyer, also developed a congruent model[30] for developing exportable curricular supervision for criterion-referenced instructional programs. The latter model of Niedermeyer correlated with his first very closely because it too had characteristics of (1) achievement expectations, (2) monitoring and (3) instructional modification and improvement. Also work that points to behavioral objectives used in a diagnostic and prescriptive mode is a small booklet which relates to the use of criterion-referenced tests in classroom instructional management.[31]

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[26] O. W. Kopp and David L. Zufelt, Personalized Curriculum: Method and Design (Columbus, Ohio: Charles E. Merrill Co., 1971), p. 28.

[27] Ibid, p. 106.

[28] Ibid, p. 112.

It is also in this context of accountability that Conner and Lessinger structure their approaches to management. Their dichotomy projects four major functions of the management mode: (1) planning, (2) organizing, (3) executing and (4) controlling.[32] The writer would like to emphasize the fact that anyone who attempts to develop an instructional management system to be used effectively in the public schools will find himself inextricably bound to the necessity of adequately providing for the major functions. In fact, unless the elements or functions are present in a management scheme the state of implementation will be quite low, as evidenced by an evaluation of the Continuous Progress Program at the Johnson School.[33]

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[29] Fred C. Niedermeyer, A Basis for Improved Instructional Leadership by School Administrators. Professional Paper 35 (Bethesda, Md.: ERIC Document Reproduction Service, ED 125 115, 1976).

[30] Fred C. Niedermeyer and Kathleen Fischer, Developing Exportable Curriculum Supervision for Criterion-Referenced Instructional Programs. Technical Report 49 (Bethesda, Md.: ERIC Document Reproduction Service, ED 125 114, 1974).

[31] Don R. Roberson, Development and Use of Criterion-Referenced Tests (Bethesda, Md.: ERIC Document Reproduction Service, ED 125 097, 1975).

With this research done the Coffee County personnel decided to construct an elementary math management program based on the use of specific objectives and test items and tests. These items would be constructed by the personnel working on the project with input from all the schools. Monitoring techniques would be incorporated based upon administrative models studied. A revised grading system would support and enhance the diagnostic and other evaluative aspects of the program. Statements of belief would be listed to keep everyone on a sound philosophical basis.

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[32] James E. Conner and Leon M. Lessinger, Quality Control: The Missing Link in Educational Management. Occasional Paper No. 3 (Bethesda, Md.: ERIC Document Reproduction Service, ED 125 103, 1976).

[33] Annette Yonke and George E. Olsen, The Johnson School Study: Status of the Continuous Progress Program of Reading at Johnson Elementary School After One Year of Implementation (Fall 1974 - Spring 1975). Technical Report (Bethesda, Md.: ERIC Document Reproduction Service, ED 119 106, 1975).

As the review of the literature is concluded the attempt to construct and energize the components of an elementary mathematics management program begins. With this beginning comes the realization that three great inputs are needed for the effort: (1) human beings with enough philosophical understanding and motivation to give the effort a good try, (2) managers who will not overlook deficiencies and who will push to remedy and improve, and (3) a program with enough clarity and specificity[34] (objectives, levels, resources, and test items) and validity and reliability[35] (test items and tests) to provide a universal base for differentiated learning.

Finally, the task to develop and implement the project itself is great. Even in the name of instructional management, and with its strong and present embodiment as a continuous progress program, individualized instruction is not a clearly defined point at which we arrive in teaching as much as it is a target at which we aim and toward which we progress.[36] It is in this spirit that the writer approaches this work.

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[34] Ibid.

[35] Robert L. Ebel, Constructing Unbiased Achievement Tests (Bethesda, Md.: ERIC Document Reproduction Service, ED 120 290, 1975).

[36] Dona K. Stahl and Patricia M. Anzalone, Individualized Teaching in Elementary Schools (West Nyack, N.Y.: Parker Publishing Company, Inc., 1970), p. 10.

CHAPTER IV

IMPLEMENTATION OF PRACTICUM STRATEGY

The great unwritten objective of this project was to improve elementary mathematics in Coffee County, Georgia. To do this the writer specified the four objectives stated above. As the reader studies these objectives he or she should conceptualize the elements of Figure 1. This diagram shows the normal progression of elements (research, needs assessment, goals, curriculum components, and other activities) as guided by the four universals of: (1) planning, (2) organizing-coordinating, (3) executing-coordinating, and (4) controlling-monitoring-evaluating. It is in this framework that this practicum was implemented. The optimum benefit will accrue to the practitioner who looks at these concepts as necessary components. The concepts are drawn from the time line to provide conceptual, rather than sequential, description. A time-line chart, Figure 5, provides a depiction of sequence.

PLANNING

The needs assessment, already described, pointed out certain weaknesses in the math program and gave clues for remedies. The school system had:

(1) Declining test scores.

(2) Uncertainty and frustration about academic expectations.

(3) Uncertainty about exactly what should be, or was being, taught.

(4) Pressures from many sectors calling for improvement.

The school system had to:

(1) Intitate systematic measures to insure continuity and uniformity of mathematics instruction.

(2) Supervise or monitor techniques so that quality performances would result (at least commensurate with the abilities of personnel and students).

(3) Cause an air of a "new spirit", a "new expectancy" and a feeling of "all personnel are in this together and want to establish a good program".

(4) Communicate with consultants, other systems and the public to make sure there was openness about what was going on.

For practical purposes the practicum work began with the beginning of the school year, 1976-77. During the months of August research was reviewed relative to what two schools, Broxton and Central, had done in the areas of behavioral objectives and uniform curriculum standards. The school system requested copies of plans from other systems and reviewed notes taken of observations of other systems. Previous in-services having to do with behavioral objectives, instructional management, and test item analysis were restudied relative to anticipated applications. Consultative help was requested by telephone and letter.

Readings were done to obtain latest research and experiences relative to instructional management in the continuous mode. The impact of such is reflected in the Development of a Strategy.

During staff planning (pre-school preparation), principals and staff were involved in sessions on past records of student achievement, motivational techniques used and attitudes about instructional evaluation and instructional systems. This was quite necessary, considering the change that was made.

The next step brought about intensive sessions among the Assistant Superintendent, Curriculum Director and Testing Coordinator concerning present attitudes about non-gradedness, pupil progress, retention, grade reporting, instructional formats, testing formats, and the philosophy of all personnel concerning instruction in the schools, and more specifically, K-6 mathematics instruction.

The Okefenokee CESA (Cooperative Educational Services Agency), a shared services agency in the area, responded to the call for consultative help (so did the University of Georgia at a later date). Dr. Larry Elbrink, Mathematics Specialist, and Mrs. Gail Aberson, Staff Development Specialist, met with the writer (Assistant Superintendent), the Curriculum Director, Mr. Cary Moore, and the Testing Coordinator, Mr. Chester Williams, to discuss goals and objectives, teacher comments (attitudes), scope and sequence for mathematics instruction, achievement-progress philosophies, controversies of the present system and projected system and problems of transition to a new system. Out of these meetings came a strong need and directions for inservice with all teachers, and especially for the representative teachers who would be working on designing math curriculum objectives, test items, tests, correlating these items with State items and negotiating the barriers of conflict in philosophy and practice relative to math instruction and progress reporting in the school system.

A letter was written (Appendix A), requesting 11 selected teachers from various instructional levels, one counselor, three central office staff and the two CESA consultants, to meet in October for three full days to work on the above components and problems of a new instructional system in elementary mathematics. It was soon realized that two more full days would be required for the initial work and these were provided the next month.

At the beginning of the work sessions, participants, or work team members, continued an investigation of appropriate materials and models. The participants selected materials that had been placed on the tables in the work session room. The materials provided home study resources. The materials most interesting to the participants were those of systems who had developed math management instructional systems (especially those of Cobb County, Georgia). It was suggested that a visitation be made to the Cobb County System.

Following the above suggestion, during the planning phase, representatives of the local system visited the Cobb County School System. The school visited was Austell Elementary School. It was at this school that the system representatives observed the workings of math management as perceived by the Cobb County School System. Although the Cobb County System (metropolitan) was many times larger than Coffee

County (small town-rural), the visiting team obtained valuable insight into the processes and products of mathematics management. It should be noted that all guides, philosophies and available materials of the Cobb County System were thoroughly studied before the visit. If this had not been done the team would have been lost in the terminology, systems approach and mechanics of the whole instructional system. Fortunately, because of previous intensive study and the actual work already done in the work sessions, the team was able to grasp the concepts and mechanics of the system.

It was also at this time that the school system received help from Dr. Robert Bazzle, then at the University of Georgia, as he contributed materials on elementary math scope and sequence. (See letter in Appendix D). The ideas present in this research were applied as the work team organized their structure of strands (numeration, operations, measurement, statistics, and other categories).

During the planning phase the administrative team also met with CESA leaders to discuss and agree upon payments to be made for substitute teachers (who replaced work session members in regular school day classes), printing, and binding. Two important decisions were made regarding the last two items: (1) Print the first year with the local Xerox (which makes a good clean copy if original is in good condition) and (2) Use loose-leaf binders, three-hole punched for the paperwork of the management system.

With the resolving of these broad and narrow-based planning chores, the Planning Phase, for the most part (considered as taking care of the preliminary arrangements), was consummated. Thus, the above planning concept approach enabled the school system to advance and attack those activities included in the next concept, Organizing-Coordinating.

ORGANIZING-COORDINATING

The Organizing-Coordinating phase finds its basis in linking together the concepts of Planning and Executing. In that context the writer projects the concept. The team work members employed this framework in the development and implementation of the math management system. This framework was required as the project materialized.

The team met for a total of seven work sessions (October, 1976 to March, 1977). During these meetings objectives were set. The initial organizing objective dealt with clarifying and agreeing upon the philosophy and goals of Coffee County's School System, Reference was made to State, regional, and present local statements (see Appendix B).

After introductions into the process of consensus, including "we agree" and "we believe" exercises, and review of local, regional, and State goals, the participants of the first day's session evolved the following statements relative to math instruction:

(1) Math students do learn at different rates of speed.

(2) Math students do learn in different modes or ways.

(3) Math should be individualized.

(4) Math should be sequential.

(5) Math should be interrelated with other subject areas.

(6) Math should include the elements of the metric system.

(7) Math should include the elements of Career Education and Orientation.

(8) Math should be taught in our school system with minimum requirements for various levels.

(9) Math progress should be continuous for each child at his own level.

(10) Math progress reporting should include provision for reporting each student's progress relative to what is expected of that student.

(11) Math progress reporting should include provisions for reporting each student's progress relative to his own merit and abilities.

(12) Math progress reporting should include provisions for reporting a student's progress relative to minimum criteria for a given level.

(13) Math management should include provisions for letting a student (when possible) work for a maximum of four years in the Primary Block and four years in the Intermediate Block.

(14) Math management should include provisions for letting a student (when possible) work for a minimum of two years in the Primary Block and two years in the Intermediate Block.

(15) Math Management should allow for a child to be held in the level in which problems are identified.

(16) Math Management must take into consideration that the learning retention factor among students varies and will not be constant.

(17) Math Management must include skills of the State Criterion Referenced Objectives and the State Curriculum.

(18) A report card does not necessarily mean a grade, but can be related to conferences and/or progress reporting sheets or other instruments.

(19) Levels in Math should be Readiness - 6 and objectives written for each level.

(20) Skills should be identified in objective form and ordered in a skills checklist for mastery regardless of what textbook is used.

(21) Math Management should have competition-based activities among schools.

(22) Math Management should have objectives which are identified as cognitive, affective, or psychomotor, and types of questions, demonstrations, and other modes identified as recall, recognition, synthesis, and analysis.

(23) Math Management should be county-wide, Levels Readiness - Sixth , and should be evidenced by common objectives, tests, charts and/or other items in the management format.

The second objective in the workshop dealt with discussing progress reporting changes in the context of the belief statements. This organizational input was necessary because of the philosophy stated above. The actual work on the report card consummated in the development of a proposed new report card format (Appendix C) and several recommendations regarding retention and the concept of non-gradedness (Appendix C).

The third objective was related to the above objectives and to discussing the work on math objectives and test items below. The participants discussed;

(1) What should children learn in math?

(2) How children learn math.

(3) How do you know they have learned math?

The consensus was that the belief statements, reporting philosophy, and other math system components should and would be complementary and supportive of each other.

The fourth objective of the participants was to review literature, models, and guides to provide understanding and working information. The review of the literature to develop strategy also was used in much of the foregoing work.

The fifth task of the participants in the work sessions was to discuss and refine a math management model. Review work was done on the nature and content (criteria) of behavioral objectives, math strands (numeration, operations, and other categories), skills prerequisite for other skills, and traditional methodology versus newer methods. Specific points of resolve centered around management facilitation on the student level - awareness of requirements, testing purposes, adaptation to the program, using the regular textbook as an aid to achieving objectives of the program; teacher level - diagnosing student math weaknesses through use of student checklists and test items, maintaining a consistent and reinforcing program and recording and reporting results on a regular basis; administrative monitors - to keep teachers supplied with appropriate math materials, test instruments, and supplying feedback by checking and returning monthly summaries of math management reports. In the larger sense the administrators would also use these efforts in evaluating the worth of the new system of math management.

The last and sixth task discussed by the work session participants in the Organizing-Coordination phase was the writing of the math management objectives and test items for Levels Readiness - 6 (elementary levels) for the Coffee County, Georgia, School System (see following sub-section for details of actual work).

With these parameters set, the work team established another mechanism of the Organizing-Coordinating function: the team members designed a format for feedback. The work session representatives worked very closely with their own schools and other teachers not actually present at the work sessions. These teachers and principals evaluated the work done and recommended changes to the work session team. It was this input that proved valuable in that it: (1) resulted in better system components (curriculum, testing and management), format and content and (2) caused many teachers to become actively involved in a process that would become important to them, and more importantly because they were involved in its creation and function. To facilitate and encourage this input, work sessions were scheduled at least a week apart so that work members would have sufficient time to review with and present work to principals and fellow teachers. Because of this coordination the program had the benefit of being exposed to numerous faculty meetings and at-school work review sessions. The impact of these supportive efforts brought positive criticism and valid content and ideas to the county-wide work sessions. Figure 2. illustrates how members moved within a system that gave maximum involvement and feedback. Also the system tended to give optimum reinforcement and encouragement to teachers and principals engaged in instructional change. It was most important that the structure provide for positive thought and attitudes and for a successful approach to the implementation of the process.

Another very important organizing-coordinating function was executed when the first county-wide Math Management Inservice was held with work session participants and county staff being the main presenters. The inservice schedule and evaluation form of that inservice are included in Appendix G. The results of that evaluation are included under the section on evaluation. This inservice highlighted the organizational-coordinating aspects of the math management scheme.

The planning and organization of the Math Management System to this point should be summarized, as to function and effectiveness, as follows:

(1) A look at previous goods and services (was there consistency and county-wide application?)

(2) Analysis and research to establish needs (test scores, comments of evaluation teams, other information and other models)

(3) Analysis and research relative to improved goals and processes (program consistency, county-wide application)

(4) Work to improve curriculum components (objectives and coordination with State curricular format)

(5) Work to improve testing components (including coordination with State testing program). It should also be noted here that the county staff visited each school to fully explain the nature of criterion-referenced testing, the State results, and some of the aspects of management that related to such tests.

(6) Work to mesh and meld components into a workable math management instructional system (monitoring, minimum standards, continuous progress concepts, improved progress reporting and coordinating curriculum objectives and test items into a format for teaching-diagnosis-prescription-reteaching).

(7) Orientation (inservice) for all teachers on philosophy and mechanics of math management system.

With the solidity of the planning and organizing phases set the team members approached the actual work of creating the math management system. The Executing-Coordinating Phase attempted to describe the mechanics of the system, how the components functioned and what occurred during the process of creating and executing the model.

EXECUTING-COORDINATING

Following the work done in the Planning and Organizing Phases the reader is directed to the actual work done in creating the main components of the Math Management System (other than Planning and Organizational components already described) and putting the system to work.

Description of Main Components

(1) Outlining the model. The math model implemented by the Coffee County School System included 19 mastery levels for elementary math students (R-6). These 19 levels were designated R, 1a, 1b, 1c, 2a, 2b, 2c, 3a, 3b, 3c, 4a, 4b, 4c, 5a, 5b, 5c, 6a, 6b, and 6c. The model has written county-wide teacher-made objectives for each level and written county-wide teacher-made tests for each level. The objectives met can be determined by the test items passed. Each level has skill strands, an objectives checksheet or checklist, an analysis sheet, and a scale of performance (unsatisfactory to superior). The model also contains monitoring processes and sheets, external (county)

tests, and other evaluation procedures and forms. The model also incorporates the use of new reporting system and report card that includes the levels listed above. The model has its philosophical foundations in the work described in the two previous sub-sections.

(2) The 19 Mastery Levels. The team members designed the 19 math mastery levels with four provisions: (a) the levels would reflect the content of State accepted textbooks and the State Criterion-Referenced Tests, (b) the levels would divide each grade level work requirements into three levels of mastery, (c) the levels could be mastered in shorter time intervals than whole year requirements and would act as incentives-catalysts for the students. (see sample level in Appendix F), (d) the levels were organized by skill strands.

(3) Skill strands. The organizational pattern set for the skills of each level grouped them into strands. The strands for each level are: (a) Sets, Numbers and Numeration, (b) Operations, (c) Relations and Functions, (d) Geometry, (e) Measurement, and (f) Probability and Statistics (see sample level in Appendix F).

(4) Written, county-wide, teacher-made objectives. The math objectives were written for each of the 19 levels. The objectives were geared to the content of State accepted textbooks and the State Criterion-Referenced Tests. The objectives were written to be used as a practical reference point for the teacher and student. A list of the objectives of one level appears on the Checksheet in Appendix F. The objectives were also placed under the appropriate skill strands (also on

Checksheet, Appendix F).

(5) Written, county-wide, teacher-made tests. Tests were written for the 19 math levels. The test for a specific level reflects the content, scope and sequence of the objectives of the level. The performance indicators for a test of a specific level are reflected on a scale of performance. The student must score in the range of "Satisfactory" before moving on to the next mastery level in the continuous progress format.

(6) Scale of performance. The scale of performance is determined by the percentage of correct items on a given level test: 69% correct and below - Unsatisfactory; 70-79% correct - Satisfactory; 80-89% correct - Very Good; and 90-100% correct - Superior. A sample of this scale is found on the Analysis Sheet in Appendix F.

(7) Analysis Sheet. The Analysis Sheet is a summary of items under each skill strand with the corresponding test score weight. It tells the teacher or student at a glance which skill area is deficient. It is used for special grouping, individualized work, and other remedial purposes. It might also signal the teacher to general areas of deficiency. The Analysis Sheet prefaces each level (Readiness through Six) and is transmitted via the student's permanent folder as he moves from teacher to teacher, level to level and makes progress in his academic achievements.

(8) Checksheet or Checklist. This sheet includes all the names of the students of a math class, all the skill strands, and all the objectives of a specific level. It includes the teacher name and school (see Appendix F). The Checksheet is lined with box-like sections, ☐ (grid sections). When a student begins to attack an objective the grid section is marked ⧄. When he masters the objective the grid section is completed with an additional diagonal mark, ☒.

The foregoing items (2-8) compose the Guide used in the Math Management System. The reader should refer to Figure 3. and Appendix F to better conceptualize the context of each item. Also one should refer to Figure 4. and Appendix E, Appendix H, and Appendix K to better conceptualize the other elements of the Math Management System.

(9) County (External) Observation Sheet (Monitoring). This sheet is filled out by an observer external to the school. However, principals are also encouraged to use it in-house. It reflects how well the teacher is implementing the Math Management System (see Appendix F). Also, a compilation of results from Observation Sheets can be seen on the Monitoring Evaluation Sheet (Appendix H).

(10) Teachers' Monthly Usage Sheet. This sheet reflects tests given, number passed, and number to be retaught. It also records checks for updating record-keeping on objectives and Analysis Sheets.

(11) Principals' Monthly Summary Sheet. This sheet reflects

the total summary of a school by months. The principal can readily see the progress of his whole school. The central office staff can determine usage for each school and get an overall achievement reading for each school and level at almost any given time.

(12) County Usage - Totals Sheet. This sheet summarizes four items: (a) Total tests given per school, (b) Number of teachers using system, (c) whether or not all Teachers' Monthly Summaries have been properly processed and returned and, (d) Whether all Principals' Monthly Summaries have been properly processed and returned (see Appendix E).

(13) County External Math Tests. These external tests attempt to correlate students' work on the regular math system level tests and State tests. The external tests are administered by central office personnel. There are two external tests, Readiness-3 Test and 4-6 Test. A scale equates the number correct with a given level. The tests are also accompanied by item analysis sheets which are returned to the teacher (see Appendix K).

(14) Reporting System and Report Card. A new reporting system and report card were designed to be a part of the math management system. Teachers mark the report card according to progress achieved in the math system levels (see Appendix C).

Putting the System to Work

The teacher has three opportunities, using the Math Management System, to vividly detect weak areas of the student: (1) on the Objectives

(Skills) Checksheet or Checklist for a given level, when the student fails to move from ⧄ to a ☒. This may be demonstrated formally (test) or informally (other demonstration), (2) on the Level Test when the student fails to work problems(s) in a proficiency area, and (3) on the Level Analysis Sheet when the teacher records a sub-proficient overall score that has its basis in one of the proficiency areas being deficient (see Figures 3 and 4).

It was quickly noted by the teachers that this system would have strong implications for: (1) better diagnostic procedures, (2) better prescriptive techniques, and (3) more accurate progress reporting, It also signaled the demand for more and varied math materials for a wide range of learners and new attempts at individualization and discreet grouping.

Utilization of the new approach came with varied degrees of acceptance and willingness to venture from the old ways. Because of this accelerated efforts were made to reinforce the principals and assistant principals in their encouraging, directing, and monitoring roles. Informal and formal meetings took place with principals and assistant principals at "comfortable" intervals. Good human relations and diplomacy prevailed in most instances. School comparisons of usage, deadlines on reporting and other monitoring techniques offered extra justifications for those who sensed a need for additonal reinforcement, Overall, the degree of acceptance and wanting an improved system was high. If monitoring observations (summarized on the monitoring form, Appendix E) reflected low usage, these personnel and/or schools received immediate attention and help from county-wide staff.

Implementation was easy for teachers as they could requisition leveled tests either via their principals or the Testing Coordinator, or they could go directly to the Testing Center and select appropriate numbers and levels of tests from the test bins. The bins were open and ordered according to math level. An effort was made to be as accomodating as possible, to encourage usage.

One of the last procedures of the new management system was to administer external (county) tests. As mentioned, these tests were designed to appear in two formats, Readiness-3 and 4-6. These tests were given on the grade level of the student (any student from grade 1-3 would take R-3 test); any student in age-grade 4-6 would take the 4-6 test. There was much discussion about this because basically the philosophy of the Coffee County System centers around the continuous progress (non-graded) mode for reading and math. However, it was decided to use the above format for four reasons:

(1) The external tests were "scaled" so that the number correct would provide the proficiency level. These tests and scales are provided in Appendix K. When graded, a diagnostic checksheet (grid) was returned to the teachers (Appendix K). This helped the teacher with final placement and the school system with correlations for purposes of improving the tests.

(2) The State gives tests in this way. Specific age-grade students must take designated age-grade tests.

(3) It was felt that the results could still be compared with teacher-made tests and the State Criterion-Referenced Tests for age-grade 4 and the achievement tests for age-grades 3 and 6.

(4) It was an experimental aspect of the program.

A last component was implementing a new reporting system and report card. Principals met with their teachers and crystallized much thought concerning the reporting system and card. These ideas were transmitted to the report card revision committee and incorporated into a new report card and recommendations. However, the initial report card was not fully accepted by parents and some school officials had reservations. A newspaper article in the Douglas Enterprise on June 16, 1977, reflected some reservations of a teacher survey (Appendix J). Talks with the parents at P T A and open house and discussion at at least two board meetings evoked much concern about the marks. The marks were changed and the new report card adopted (see Appendix C for first rough draft of card that was not fully accepted and also the final adopted printed version of the card as delivered from the printers and put into use in the school system).

As the program developed time was utilized to boost the program by presenting the main aspects to small groups, staff meetings, county instructional steering committee and finally, to the Board of Education. At the December meeting of the Board the new Math Management System model was presented and explained. The Board adopted it for a trial run for the remainder of the year. The program was written into the revised curriculum policy for the year.

It was also at this time that a newspaper article appeared in the local papers describing the elements of the program to the public (Appendix H). The math program also received coverage in the Atlanta Constitution.

At the completion of the year, in May, all reports on usage, test scores (teacher-made, external (county), and State) were compiled and correlated as described in the evaluation section and in the respective Tables. All other diagrams, surveys, and articles that would aid the school practitioner in carrying out a math management system are found in the evaluation section, summary, figures, tables and appendices of this report.

Provisions for the acquisition of additional guides, checksheets or checklists and tests not included in this report (because of volume) are included under the section on dissemination.

CONTROLLING-MONITORING-EVALUATING

The worth of the Math Management System was looked at internally and externally. Because of its very nature the system was built with internal controls. However, since the external evaluations had broad implications, it would be appropriate to look first at these outside evaluations.

External

During the development of the Math Management System the State Assessment Team visited the system and had high praise for the work being done. They promised a return visit for viewing the program as it progressed in its stages of development. Later, Dr. John Wimpey of the State Department of Education (Georgia) returned to the Coffee County School System and reviewed the math work. His favorable comments and comparisons led system personnel to believe that the school system was competing a high level with other systems seeking academic excellence in program design that would complement the theories of instructional management, continuous progress teaching and learning and creative techniques employing the strengths of criterion-referenced objectives and testing.

Then, the State Comprehensive Study Team visited the school system and made prominent mention of the elementary math program in their report and said that other elementary areas should be so developed.

Also, Superintendent James Morris of the neighboring Atkinson County School System gave a positive interim report (Appendix L) on the progress of the program and a delegation of parents from another neighboring county, Ben Hill, came to Coffee County to see the program. The arrangements were initiated by Ben Hill Principal Jim Willis, who had heard of the program.

Internal

Internal evaluations would best be explained under two headings: (1) the internal monitoring and controlling and evaluating of the implementation of the Math Management System (observations and reporting data and actions of the program) and (2) the evaluation that resulted from measuring the objectives of the practicum effort.

Of course the two types overlapped in many, if not all, instances as the practicum developed. However, because the internal monitoring of the mechanics of the Math Management System is more process-oriented it would be appropriate to look at that area first.

(1) Internal monitoring and controlling and evaluating of the implementation of the Math Management System. Strong emphasis was placed on monitoring - both at the school and system levels. A summary of ratings and comments are found in Appendix I. The positive comments told much about what was right with the management system. The negative comments were used and will continue to be used for improving the program. County-wide staff made visitations and recorded observations on the Monitoring Sheet. Principals devised their own procedures for these purposes. Many used the same checklist that is contained in the Monitoring Sheet.

Monitoring efforts were continued as the program developed and principals were given reports on how their schools were using the new system. This seemed to cause an air of expectation and a new spirit at the staff meetings. It was realized by all that a math management system was operating that had definite implications for improvement and accountability. Follow-up had not been neglected. Principals were also encouraged to do their best with all aspects of the program as the Board would use the final evaluation as a basis for continuing or discontinuing the program and as a means for allocating funds for materials that would be required in future stages of the program. (The meaning of "future stages" will be expanded in the summary of this report under Recommendations .)

A "polishing session" was also held for evaluative purposes during the development of the practicum. Work session participants and county staff met again to correct mistakes, make keys for tests, design external (county) tests, and work more on reporting system and report card revision. All teachers in the system were very helpful with the effort as they marked mistakes (typographical, content, spacing, etc.) on copies of checklists and tests. They also submitted ideas on how to improve the instruments. Once corrected, old materials were updated with corrected formats. An additional session completed this work. (The previous decision to use Xerox corrected sheets and three-hole binders paid off.) Two suggestions should be made here for practitioners venturing into this type of system initiation: (1) Typists cannot guess what one wants or read one's mind relative to what one means by mathematical symbols, abbreviations, and spacing. Do not expect these personnel to be able to cope with such tasks. (2) Write clearly and make the rough copy very clear and translatable. This will enable the typists to concentrate their efforts on doing quality work.

In addition to the summary mentioned above (Appendix I), the reader is directed to Appendix E for forms used in the internal monitoring and controlling process. These data helped all personnel in the program to do an on-going evaluation of how the program was progressing and provided valuable information concerning program improvements (feedback to teachers, students, and parents, modifications in program expectations and applications, uses and limitations of results).

(2) Internal evaluation resulting from measuring the results (success or failure) of the objectives of the practicum. At the outset of the practicum certain objectives (previously stated) were were outlined containing success criteria. At this point these objectives will be restated and evidence will be presented to show to what degree these objectives were successful (or were not successful).

Objective A.

The development and implementation of an elementary math management system shall result in increasing third age-grade achievement to 3.05, fourth age-grade achievement to 3.78, and the fourth age-grade Criterion-Referenced Test percentage achievement to 67.5%.

Third age-grade achievement; Tables I and II:

Table I shows that the 3rd graders made significant gains in the 1976-77 school year. The district advanced from 2.9 (pretest) to 3.79 (posttest) score. Also, current year third graders out performed previous third graders by 48.9%, as measured by learning rate (Table II). Table II data represent Fall third and Fall fourth grade scores (actually, a year's progress for the third graders, as the data reflect back-to-back years). The data are for three different years, indicating three sets of students. Current year column represents same students, pre and post, within the current year (6.5 months period). The learning rates are derived by dividing the number of months into the achievement gained during those months. It is indicated that very significant gains have been made by most schools (note percentage increase/decrease column in

Table II). From the data it appears that the third graders performed well beyond expectations of the success criterion and the objective is satisfied.

TABLE I

SCHOOLS AND DISTRICT 3rd GRADE STANDARDIZED MATH SCORES PRE AND POSTTEST FOR 1976-77

SCHOOL	1976-77 PRETEST SCORE	1976-77 POSTTEST SCORE
AMBROSE	2.9	3.8
BROXTON	2.9	4.0
CENTRAL	2.8	3.7
NICHOLLS	3.1	4.0
WEST GREEN	3.3	3.8
DISTRICT (COUNTY)	2.9	3.79

SOURCE(S): Test Results, Coffee County, Georgia, School System.

TABLE II

3rd AGE-GRADE LEARNING RATES (MONTHLY) OF SCHOOLS AND DISTRICT COMPARISON OF THREE-YEAR AVERAGE (9 MONTHS) WITH 6.5 MONTHS OF CURRENT YEAR

SCHOOL	72-74 (3 YEARS) AVERAGE YEARLY GAIN-LOSS	AVERAGE MONTHLY LEARNING RATE (DIVIDE COLUMN 1 BY NINE)	CURRENT YEAR GAIN-LOSS	CURRENT YEAR'S MONTHLY LEARNING RATE (DIVIDE COLUMN 3 BY 6.5)	INCREASE (+) DECREASE (-)	% (+) OR (-)
AMBROSE	+1.1	.122	+ .9	.138	+.016	+ 13.1
BROXTON	+ .60	.067	+1.1	.169	+.062	+ 92.5
CENTRAL	+1.03	.114	+ .9	.138	+.024	+ 21.1
NICHOLLS	+ .60	.067	+ .9	.138	+.071	+105.97
WEST GREEN	+1.0	.111	+ .5	.076	-.035	- 31.5
DISTRICT (COUNTY)	+ .83	.092	+ .89	.137	+.045	+ 48.9

SOURCE(S): **Test Results, Coffee County, Georgia, School System.**

Fourth age-grade achievement; Table III:

Sample fourth age-grade achievement tests were not returned and the predicted 3.78 score could not be verified.

The fourth age-grade State Criterion-Referenced Test percentage achievement predicted in Objective A was 67.5%. The county system advanced from 62.50% to 62.75%, a gain of only .25%. The State prediction (2.5% over 1976) was 70.85%. This was more accurate as the State's actual score was 71.55%. Only two schools, Ambrose and Broxton, surpassed the projected increase for Coffee County Schools (increase of 5%). Ambrose gained 6.35% and Broxton gained 5.30%. All other schools recorded slight percentage losses. Thus, the objective was met for third age-grade but not for fourth age-grade. Four factors could possibly account for this: the compared fourth grades were different groups of students, the group had not done as well in the third grade as the present third grade, their test scores compared to the Score Expectancy Factor (see Objective B) correlated rather low, at .10, and the State Criterion Test is a relatively new test format.

TABLE III

1976 AND 1977 FOURTH AGE-GRADE STATE CRITERION-REFERENCED TEST RESULTS

SCHOOL	STATE % CRITERION REFERENCED TEST - 1976	STATE % CRITERION REFERENCED TEST - 1977	GAIN (+) LOSS (-)
Ambrose	67.60	73.95	+6.35
Broxton	60.05	65.35	+5.30
Central	60.05	58.70	-1.35
Nicholls	70.75	68.75	-2.00
West Green	68.45	65.60	-2.85
District	62.50	62.75	+ .25
State	68.35	71.55	+3.20

SOURCE(S): Test Results, Coffee County, Georgia, School System.

Objective B.

A math management system for elementary math will provide a mechanism for identifying the mastery of specific math skills, resulting in a .60 (or greater) Spearman Rank Order correlation between usage and testing in the respective schools.

Table IV gives math system usage rates and factors. Usage is the total number of math system tests given at a school; usage rate is derived by dividing the number of tests by the number of involved teachers; usage factor is derived by ranking usage rates with the highest rank (corresponding to 1.0). The factors form the basis for other computations related measuring Objective B.

TABLE IV

ELEMENTARY MATH SYSTEM USAGE RATES AND FACTORS

SCHOOL	INVOLVED TEACHERS	USAGE	USAGE FACTOR	USAGE RATE
AMBROSE	7	310	.45	44.29
BROXTON	7	166	.24	23.71
CENTRAL	28	2323	.84	82.96
EASTSIDE-WESTSIDE	19	923	.49	48.58
NICHOLLS	11	212	.19	19.27
SATILLA	5	383	.77	76.70
WESTGREEN	5	495	1.00	99.00
DISTRICT TOTALS	82	4812		

SOURCE(S): Cumulative Reporting Forms of the Coffee County, Georgia, Elementary Mathematics Management System (Appendix E)

Table V lists four factors: (1) the Score Expectancy Factor relates directly to I Q (Intelligence Quotient) - 1 being high and 5 being low; (2) Local System Management System Usage Factor relates directly to usage rate explained above - 1 is high and 5 is low; (3) Actual Percentage State Score Factor relates directly to the score rankings on State scores by local schools - 1 is high 5 is low; and, (4) Gain-Loss (State Score) Over Last Year Factor relates directly to percentage points gained or lost on the 1977 State Criterion-Referenced Test from the previous year, 1976 (see Table III).

TABLE V

4th GRADE RANKINGS ACCORDING TO SCORE EXPECTANCY FACTOR
LOCAL SYSTEM MANAGEMENT SYSTEM USAGE FACTOR
ACTUAL PERCENTAGE STATE SCORE FACTOR
GAIN - LOSS (STATE SCORE)
OVER LAST YEAR FACTOR

SCHOOL	AVERAGE NON-VERBAL IQ (1971-72-75)	SCORE EXPECTANCY FACTOR	MATH SYSTEM USAGE FACTOR	ACTUAL PERCENTAGE STATE SCORE FACTOR	GAIN-LOSS (STATE SCORE) OVER LAST YEAR FACTOR
AMBROSE	87.2	4	3	1	1
BROXTON	85.7	5	4	4	2
CENTRAL	88.9	3	2	5	3
NICHOLLS	93.6	2	5	2	4
WEST GREEN	93.7	1	1	3	5

SOURCE(S): Coffee County, Georgia, Test Results and Statistics included in this Report.

Table VI gives rank order correlations on the following: (1) Score Expectancy Factor and Local System Management Usage Factor; (2) Actual State Score Factor and Usage Factor; (3) Gain-Loss (State Score) Over Last Year Factor and Usage Factor. The correlations are .40, -.30, and -.30, respectively. The .60 correlation was not evident in any of the correlations. Thus, correlating these aspects of testing and usage did not meet the criteria of the objective set (in the case of the fourth graders). Different results appear in Tables VII, VIII, and IX.

TABLE VI

LOCAL MATH MANAGEMENT SYSTEM USAGE FACTOR RANK ORDER CORRELATION WITH THREE OTHER FACTORS (FOURTH GRADERS)

USAGE FACTOR WITH	CORRELATION
SCORE EXPECTANCY FACTOR	.40
ACTUAL PERCENTAGE STATE SCORE FACTOR	-.30
GAIN-LOSS (STATE SCORE) OVER LAST YEAR FACTOR	-.30

SOURCE(S): Coffee County, Georgia, Test Results.

Table VII, however, gives more encouraging evidence that the new math system has merit. The data are more recent (1977-78) and reflect carry-over effect into the school year following the practicum effort (the data are possible to insert at this point as this practicum report is being revised during February, 1978). High math system users have higher score percentile ranks. The correlation is .90 for first graders and exceeds the .60 criterion.

TABLE VII

LOCAL MATH MANAGEMENT USAGE FACTOR RANK ORDER CORRELATION WITH FIRST GRADE SCORE PERCENTILE RANK (1977-78)

	USAGE FACTOR RANK ORDER	PERCENTILE SCORE RANK ORDER
AMBROSE	3	4
BROXTON	4	3
NICHOLLS	5	5
WEST GREEN	1	1
WESTSIDE	2	2

r = .90

SOURCE(S): Coffee County, Georgia, Test Results.

Table VIII supplies data correlating usage of the math system with 1977-78 percentages of third graders below grade level. The Nicholls School data could not be included because all sections were not reported with the results. The correlation is .40 and does not meet the .60 criterion.

TABLE VIII

LOCAL MATH MANAGEMENT USAGE FACTOR
RANK ORDER CORRELATION WITH
PERCENTAGE OF THIRD
GRADERS BELOW
GRADE LEVEL
(1977-78)

	USAGE FACTOR RANK ORDER	PERCENTAGES BELOW GRADE LEVEL RANK ORDER (LOWEST PERCENTAGE BELOW GRADE LEVEL = 1)
AMBROSE	3	4
BROXTON	4	2
CENTRAL	2	3
WEST GREEN	1	1

r = .40

SOURCE(S): Coffee County, Georgia, Test Results.

Table IX also gives data comparing usage with percentages of students below grade level. The usage factor rank order is compared with percentages of sixth graders falling below grade level. High math system users tended to have less students scoring below grade level. The correlation is .70 and exceeds the .60 criterion.

TABLE IX

LOCAL MATH MANAGEMENT USAGE FACTOR RANK ORDER CORRELATION WITH PERCENTAGE OF SIXTH GRADERS BELOW GRADE LEVEL (1977-78)

	USAGE RANK ORDER FACTOR	PERCENTAGES BELOW GRADE LEVEL RANK ORDER (LOWEST PERCENTAGE BELOW GRADE LEVEL = 1)
AMBROSE	3	4
BROXTON	4	5
NICHOLLS	5	3
SATILLA	2	2
WEST GREEN	1	1
r = .70		

SOURCE(S): Coffee County, Georgia, Test Results

Objective C.

Coffee County elementary (K-6) math students and school personnel will show improvement as evidenced by at least three elementary schools becoming Standard in achievement and a decrease of 50% of number of schools cited for deficiencies by the State Assessment Visiting Team.

Although the State Standards section changed its procedures and will not visit schools or issue citations as they did last year, the writer still applied the progress made as if these procedures would be continued.

Comparisons of scores show that the district (county), Ambrose, and Broxton would be Standard by virtue of making progress over the immediate previous year on the Criterion-Referenced Test (Table X). Nicholls and West Green would be Standard by showing improvements as compared to the State ratio score when comparing achievement tests and the Criterion-Referenced Tests. A reference point was established by using the State's 3.8 achievement score of 1976 and the 68.35% State Criterion-Referenced Test score of the same year (Table X). Nicholls at 68.75% would convert to 3.82, higher than the two previous years of 3.7 and 3.6, and West Green would convert to 3.65, higher than one of the previous years, 1974-75, when the score was 3.4. Only Central, converting to 3.27, would be unable to exceed her scores of two previous years, 1974-75 and 1975-76, when the scores were 3.58 and 3.55 (also Table X). Thus, the Objective C. would be more than met, with the district (county) and four schools being Standard under the criteria as originally stated in this Report. (See Table III for current scores).

TABLE X

TEST SCORE AND STANDARDS DATA (ELEMENTARY MATH)

		THIRD (3rd) AGE-GRADE TEST SCORES (COUNTY)					FOURTH (4th) AGE-GRADE TEST SCORES (State)				STANDARD 1975	STANDARD 1976	CRITERION REFERENCED TEST (4th) 1976
		72-73	73-74	74-75	75-76	76-77	72-73	73-74	74-75	75-76			
AMBROSE ELEMENTARY	(K-6)	2.3	2.5	3.0	2.8	2.9	3.6	3.5	3.5	4.1[b]	NO	YES Categ. 3	67.6%
BROXTON ELEMENTARY	(K-6)	2.8	No Score	2.7	3.0	2.9	3.9	3.5	3.4	3.2	NO	NO, but submitted plan	60.5%
CENTRAL ELEMENTARY	(3,4,5)	2.6	2.5	2.5	2.6	2.8[a]	3.5	3.56	3.58	3.55	YES	NO, but submitted plan	60.5%
NICHOLLS ELEMENTARY	(K-6)	3.2	3.1	2.7	3.2	3.1	3.8	3.5	3.7	3.6	NO	?? School[c] exempted compt.error	70.75%[d]
WEST GREEN ELEMENTARY	(K-6)	3.0	2.5	2.5	3.3	3.3	3.7	3.5	3.4	4.1[b]	NO	YES Categ. 3	68.45%[d]
COUNTY (DISTRICT)		2.8	2.7	2.6	2.8	2.9	3.7	3.5	3.5	3.6	NO	YES	62.5%
STATE		----	NOT TESTED	------			3.9	3.6	3.7	3.8	N/A	N/A	68.35%
NATIONAL							4.3	4.2	4.1	4.1	N/A	N/A	N/A

[a] Only Central shows improvement in 76-77 over one or two previous years. Even it is not up to grade level. County not at grade level (3.1)

[b] Ambrose-W.Green show substantial gain. All other schools fall. County improves but still below State av. and grade level (4.1) Would necessitate a 5.56% increase (2 months) for County to pull even with State.

[c] Ambrose-W. Green are Standard. Nicholls School exempted because of computer error

[d] Only Nicholls & W. Green exceed State %. County is 5.85% off State pace.

SOURCE(S): Test Results, Coffee County, Georgia, School System.

Objective D.

A new reporting system will evolve which will be acceptable to a majority (more than 50%) of the schools, involved community and students, and school board.

A new report card (rough paper copy) is found in Appendix C and was accepted by the local Board of Education and a great majority of the teachers as reflected by their ratings in Appendix J and Tables XI and XII. However, due to parent concern in informal polls, P T A meetings and Board of Education meetings, and general concern over marks ("grades"), modifications were made. The finished final version of the report card is also found in Appendix C. The only segment of the community not having a dynamic influence on the report card were the elementary students. The writer believes they did not respond negatively or positively to any significant degree because they have always had the former reporting system that began in 1950. They simply had not experienced the type of marking that characterizes the new reporting system and report card.

The objective is not technically met if the student response is necessary for inclusion in the success criterion. However, the writer believes that the effect of the objective would not have been changed drastically as most students preferred not to comment on something they had never been exposed to.

Table XI gives teacher evaluative comments (response to survey) on a 1-5 scale, low to high. Table XII gives a regrouping of the same data and gives a total rating based on the 1-5 scale.

TABLE XI

EVALUATION RESULTS OF ELEMENTARY REPORT CARD SURVEY (APPENDIX J)

ITEM SURVEYED	NO. (N)	"1" (N)	"1" %	"2" (N)	"2" %	"3" (N)	"3" %	"4" (N)	"4" %	"5" (N)	"5" %
		(No)		(Not much)		(Moderately)		(Highly)		(Very Highly)	
1. I think the math system's levels, R-6, would help	76	8	10.5	7	9.2	36	47.4	18	23.7	7	9.2
2. I am in favor of changing reporting period to 6 weeks	85	20	23.5	9	10.6	28	32.9	16	18.9	12	14.1
3. I like the way "grades" are reported on the proposed card	75	5	6.7	15	20.0	34	45.3	10	13.2	11	14.7
4. REQUIRED NO RATING - comments											
5. Overall, I like the proposed report card	83	6	7.2	15	18.1	10	12.0	30	36.1	22	26.5

SOURCE(S): Evaluation Survey Instrument, Proposed Report Card, Coffee County, Georgia, School System.

TABLE XII

COMPILATION OF RESULTS OF TABLE XI RATINGS (EVALUATION) OF REPORT CARD

ITEM SURVEYED	N	% ANSWERING 1 or 2 - NO or NOT MUCH (NEGATIVE)	% ANSWERING 3-5 MODERATELY, HIGHLY, VERY HIGHLY (POSITIVE)	TOTAL POINT RATING AVERAGE
1. I think the math system's levels, R-6, would help	76	19.7%	80.3%	3.12
2. I am in favor of changing reporting period to 6 weeks	85	34.1%	65.9%	2.89
3. I like the way "grades" are reported on the proposed card	75	26.7%	73.2%	3.09
4. REQUIRED NO RATING - comments				
5. Overall, I like the proposed report card	83	25.3%	74.6%	3.57
TOTAL		26.6%	73.4%	3.17

SOURCE(S): Evaluation Survey Instrument, Proposed Report Card, Coffee County, Georgia, School System.

Evaluation of the New Elementary Math Management System

In concluding this section on evaluation, it is deemed appropriate that the results of a survey reflecting attitudes about the Math Management System be included in this Report. The statements in Tables XIII and XIV are self-explanatory and reflect teacher ratings. No names were signed and it was felt that honest responses were made.

Table XIII lists seven survey items and teachers responded by checking 1, 2, 3, 4, or 5, indicating Very Low, Low, Moderately, Great Degree, or Very Great Degree. Table XIV compiles these attitudes toward the Elementary Math Management System. Only three items fell under a cumulative 3.0. Inservice adequacy rated 2.86; whether the system helped students' test-taking abilities rated 2.49; and the desirability of approaching Language Arts in a similar way next year received a 2.83. These data will be used to improve the system for the coming year. Specifically, it was deduced that there was not enough communication from the work sessions at the inception of the development of the program. Relative to the test-taking item it was felt that the students' taking of many types of tests (norm-referenced, criterion-referenced and teacher-made) might have led to some difficulty, especially on the part of the students. The language arts item was low because the teachers asked that the school system completely work out details of the math system before starting on language arts.

Other data were very encouraging, especially the fact that 87.5% of the teachers wanted to see the math system continued. The total rating of that item was 3.38.

TABLE XIII

EVALUATION RESULTS OF ELEMENTARY MATH MANAGEMENT SURVEY (APPENDIX J)

ITEM SURVEYED	NO. (N)	"1" (N) Very Low	"1" %	"2" (N) Low	"2" %	"3" (N) Moder- ately	"3" %	"4" (N) Great Degree	"4" %	"5" (N) Very Great Degree	"5" %
1. I personally like the Elementary Math Management System	72	5	6.9	9	12.5	29	40.3	20	27.8	9	12.5
2. I have personally used the Elementary Math Management System	72	6	8.3	4	5.6	35	48.6	19	26.4	8	11.1
3. I feel that I understand the value of the system for elementary students	72	0	-0-	4	5.6	27	37.5	27	37.5	14	19.4
4. I feel inservice as being adequate relative to the operation of the System	70	5	7.1	19	27.1	30	42.9	13	18.6	3	4.3
5. I feel students' test-taking abilities have been helped	70	11	15.7	21	30.0	31	44.3	7	10.0	0	-0-
6. I would like to see Math System continued	72	3	4.2	6	8.3	36	50.0	15	20.8	12	16.7
7. I would like to approach Language Arts in a similar way next year	66	13	19.7	10	15.2	22	33.3	17	25.8	4	6.1

TABLE XIV

COMPILATION OF ATTITUDES TOWARD MATH MANAGEMENT SYSTEM

ITEM SURVEYED	N	% ANSWERING 1 or 2 - VERY LOW or LOW (NEGATIVE)	% ANSWERING 3-5 MODERATELY, GREAT or VERY GREAT DEGREE (POSITIVE)	TOTAL POINT RATING AVERAGE
1. I personally like the Elementary Math Management System	72	19.4%	80.6%	3.26
2. I have personally used the Elementary Math Management System	72	13.9%	86.1%	3.26
3. I feel that I understand the value of the system for elementary students	72	5.6%	94.4%	3.71
4. I feel inservice as being adequate relative to the operation of the System	70	34.2%	65.8%	2.86
5. I feel students' test-taking abilities have been helped	70	45.7%	54.3%	2.49
6. I would like to see Math System continued	72	12.5%	87.5%	3.38
7. I would like to approach Language Arts in a similar way next year	66	34.9%	65.2%	2.83
TOTAL		23.5%	76.5%	3.12

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this practicum effort was to improve mathematics teaching and learning in levels Readiness through Sixth in the schools of Coffee County, Georgia. The following information gives the Summary and Conclusions of the Report. The Recommendations section includes provisions for institutionalization, dissemination, and further study.

Summary and Conclusions

The approach used was the development and implementation of an elementary math management system that included the elements of planning, organizing-coordinating, executing-coordinating, and controlling-monitoring-evaluating.

Teachers, administrators and students felt the impact of a continuous progress concept that was translated into clear and universal math objectives and tests. Mastery levels of proficiency were established.

Record keeping and monitoring systems proved that such a system could be successfully implemented in the county. The amount of usage, teacher opinions of the program and State and local test results attest to this fact. "Successfully implemented" does not mean that the Coffee County School System is totally satisfied with the new math system. The program shall be pursued to all points of refinement.

The program also gave impetus to a move to revise the present reporting system and report card. The continuous progress concept was applied to a new reporting system and the levels of the new math system incorporated into the new reporting system and report card. Teacher opinions about the proposed report card indicate that it will be well accepted with the coming of certain refinements for the card. Chief among these concerns was the desire for a marking system or "grading" system that would be indicative of continuous progress and at the same time have consideration for the ability of the student. Others were concerned about minimum mastery of a specific level before movement to another level. The final report card, just off the press, was a compromise of all these positions.

In concluding, the county now has a very firm basis for a mathematics management system that can adapt itself to metric and career education orientations (some of these elements have already been included). Besides this, all schools now have a more systematic and consistent approach to elementary mathematics and progress reporting.

The county has addressed itself to its students and a concern for their learning. There is a realization that the world expects a certain degree(s) of mastery and proficiency. The system described throughout this Report is a vehicle for that accountability and responsibility.

Recommendations

Institutionalization

The Coffee County Board of Education has already adopted this new math management program and placed it in the curriculum policy of the county. A final report to the Board will be made in the coming weeks.

The largest elementary school in the county, Central, is already using the tests of the county system as placement instruments for the coming year. Others are expected to follow this example.

The new report card, already printed and distributed, contains elements of the continuous progress math program and was a part of the practicum itself.

Dissemination

One neighboring county, Ben Hill, has already visited the system to inquire about the new math program and others are being invited by invitations at conferences, through Okefenokee CESA newsletter (nine counties) and through the GLRS (Georgia Learning Resources Services) newsletter (19 counties). An article has appeared in a state daily, the Atlanta Constitution, and in local county papers.

Plans are being made to disseminate information at Bootstrap, the state's periodical conference for county school superintendents.

Although a copy of the Guide was submitted separately from the Practicum Report, it can be obtained at minimal cost from the Coffee County School System.

Further Study

Although the practicum and report have been encouraging, it is advised that extensive study and research, of the local program and other programs, be pursued with much diligence. The skeleton has been constructed for one of the most dynamic programs possible.

It is also recommended (and Coffee County is preparing to do it) to follow through next year with a supporting element to provide materials in a systematic and categorized mode. Some of this was done in an experimental mode in one of the schools this year. In this way the diagnostic aspects of the program can be fully energized by the rapid and effective use of drill sheets, book and page references, transparencies, and other resources. One specific way that this will be done is the development of bins that have materials coded to the objectives and test items.

Another recommendation is that the program be scrutinized and all errors and format mistakes be corrected. Upon completion of this task it is recommended that the guides and tests be produced on clean offset printing or by some desirable technique.

All in all, it is believed that the program is worthy but can be improved by the above recommendations.

FIGURES

Figure 1. Math Management System (Readiness - Sixth)

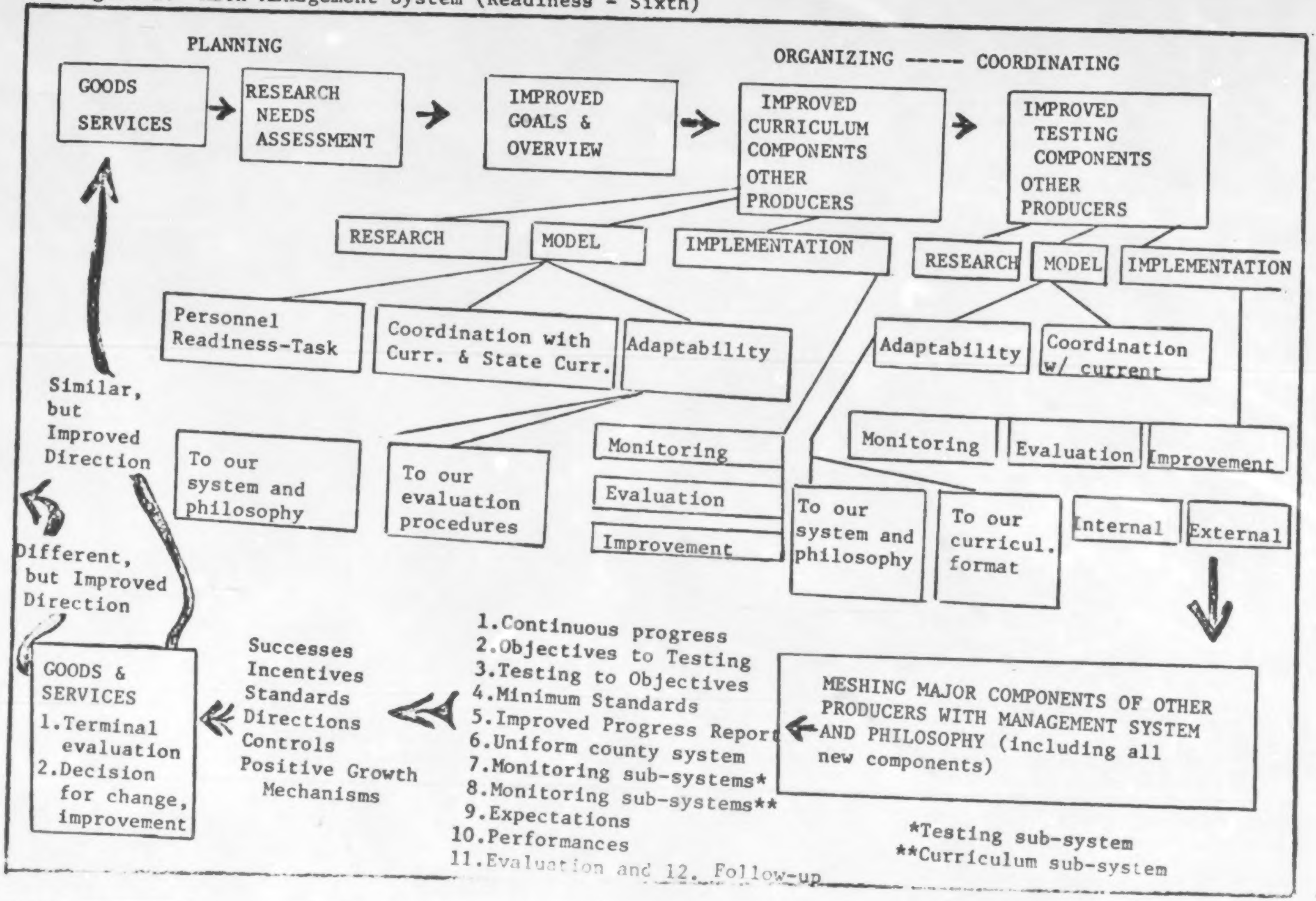

PLANNING
ORGANIZING ----- COORDINATING
GOODS SERVICES
RESEARCH NEEDS ASSESSMENT
IMPROVED GOALS & OVERVIEW
IMPROVED CURRICULUM COMPONENTS OTHER PRODUCERS
IMPROVED TESTING COMPONENTS OTHER PRODUCERS
RESEARCH
MODEL
IMPLEMENTATION
RESEARCH
MODEL
IMPLEMENTATION
Personnel Readiness-Task
Coordination with Curr. & State Curr.
Adaptability
Adaptability
Coordination w/ current
Similar, but Improved Direction
To our system and philosophy
To our evaluation procedures
Monitoring
Evaluation
Improvement
To our system and philosophy
To our curricul. format
Monitoring
Evaluation
Improvement
Internal
External
Different, but Improved Direction
GOODS & SERVICES
1.Terminal evaluation
2.Decision for change, improvement
Successes
Incentives
Standards
Directions
Controls
Positive Growth Mechanisms
1.Continuous progress
2.Objectives to Testing
3.Testing to Objectives
4.Minimum Standards
5.Improved Progress Report
6.Uniform county system
7.Monitoring sub-systems*
8.Monitoring sub-systems**
9.Expectations
10.Performances
11.Evaluation and 12. Follow-up
MESHING MAJOR COMPONENTS OF OTHER PRODUCERS WITH MANAGEMENT SYSTEM AND PHILOSOPHY (including all new components)
*Testing sub-system
**Curriculum sub-system

Figure 2. County-wide elementary math management work sessions and at-school sessions model - designed to bring maximum involvement. "The Loading and Unloading Process". Read from bottom of page to top.

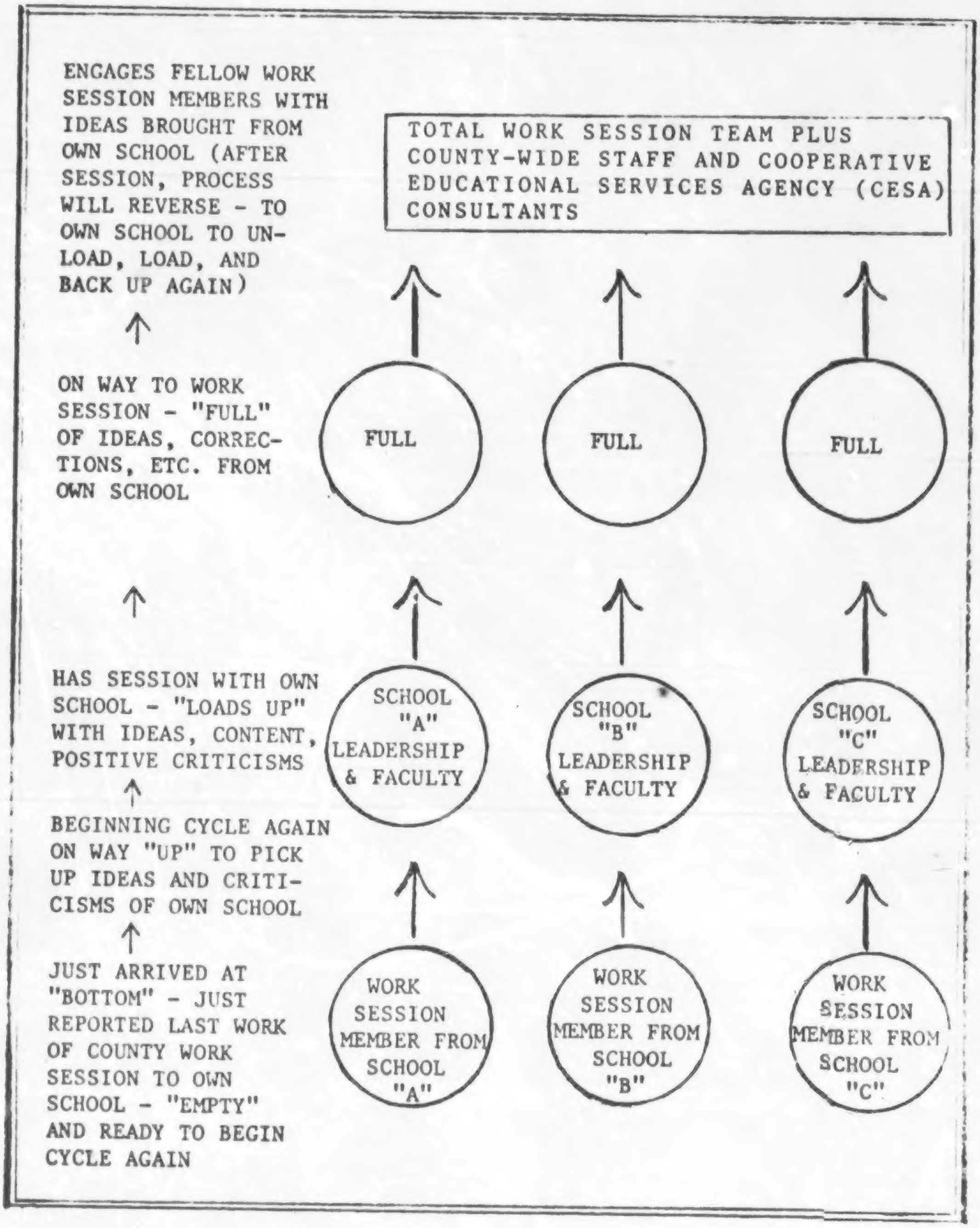
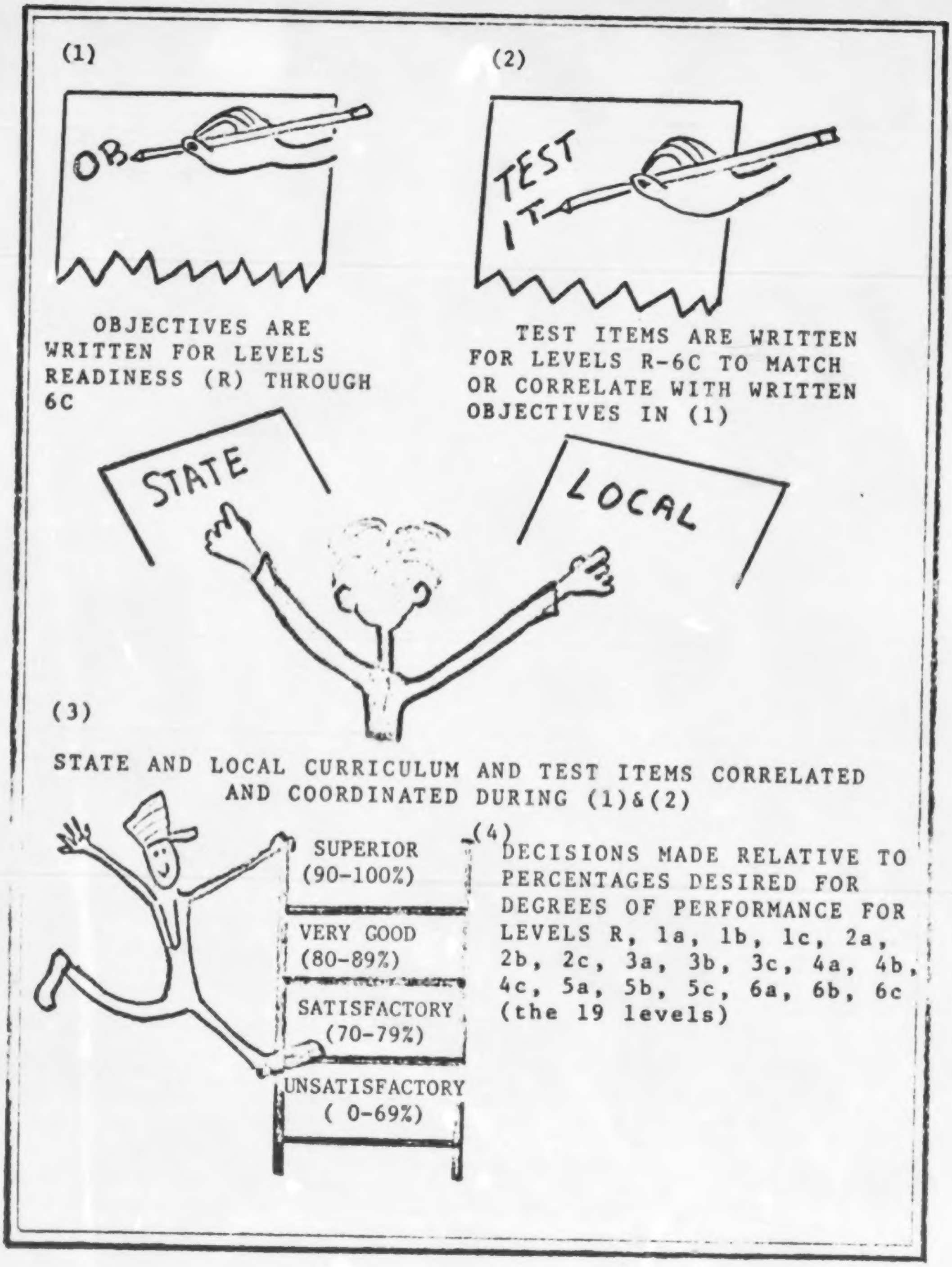

ENGAGES FELLOW WORK SESSION MEMBERS WITH IDEAS BROUGHT FROM OWN SCHOOL (AFTER SESSION, PROCESS WILL REVERSE - TO OWN SCHOOL TO UNLOAD, LOAD, AND BACK UP AGAIN)
TOTAL WORK SESSION TEAM PLUS COUNTY-WIDE STAFF AND COOPERATIVE EDUCATIONAL SERVICES AGENCY (CESA) CONSULTANTS
ON WAY TO WORK SESSION - "FULL" OF IDEAS, CORRECTIONS, ETC. FROM OWN SCHOOL
FULL
FULL
FULL
HAS SESSION WITH OWN SCHOOL - "LOADS UP" WITH IDEAS, CONTENT, POSITIVE CRITICISMS
SCHOOL "A" LEADERSHIP & FACULTY
SCHOOL "B" LEADERSHIP & FACULTY
SCHOOL "C" LEADERSHIP & FACULTY
BEGINNING CYCLE AGAIN ON WAY "UP" TO PICK UP IDEAS AND CRITICISMS OF OWN SCHOOL
JUST ARRIVED AT "BOTTOM" - JUST REPORTED LAST WORK OF COUNTY WORK SESSION TO OWN SCHOOL - "EMPTY" AND READY TO BEGIN CYCLE AGAIN
WORK SESSION MEMBER FROM SCHOOL "A"
WORK SESSION MEMBER FROM SCHOOL "B"
WORK SESSION MEMBER FROM SCHOOL "C"

Figure 3. Depiction of process of establishing objectives, test items, and degrees of performance in context of guide and its levels.



(1)

OBJECTIVES ARE WRITTEN FOR LEVELS READINESS (R) THROUGH 6C

(2)

TEST ITEMS ARE WRITTEN FOR LEVELS R-6C TO MATCH OR CORRELATE WITH WRITTEN OBJECTIVES IN (1)

(3)

STATE AND LOCAL CURRICULUM AND TEST ITEMS CORRELATED AND COORDINATED DURING (1)&(2)

(4)

DECISIONS MADE RELATIVE TO PERCENTAGES DESIRED FOR DEGREES OF PERFORMANCE FOR LEVELS R, 1a, 1b, 1c, 2a, 2b, 2c, 3a, 3b, 3c, 4a, 4b, 4c, 5a, 5b, 5c, 6a, 6b, 6c (the 19 levels)

Figure 4. Summary of forms used with Math Management System. Items (1) through (3) are teacher controlled; (4) and (8) are county-administered; (5) and (6) are sent in to county office by teachers and principals; (7) is compiled by the county office.

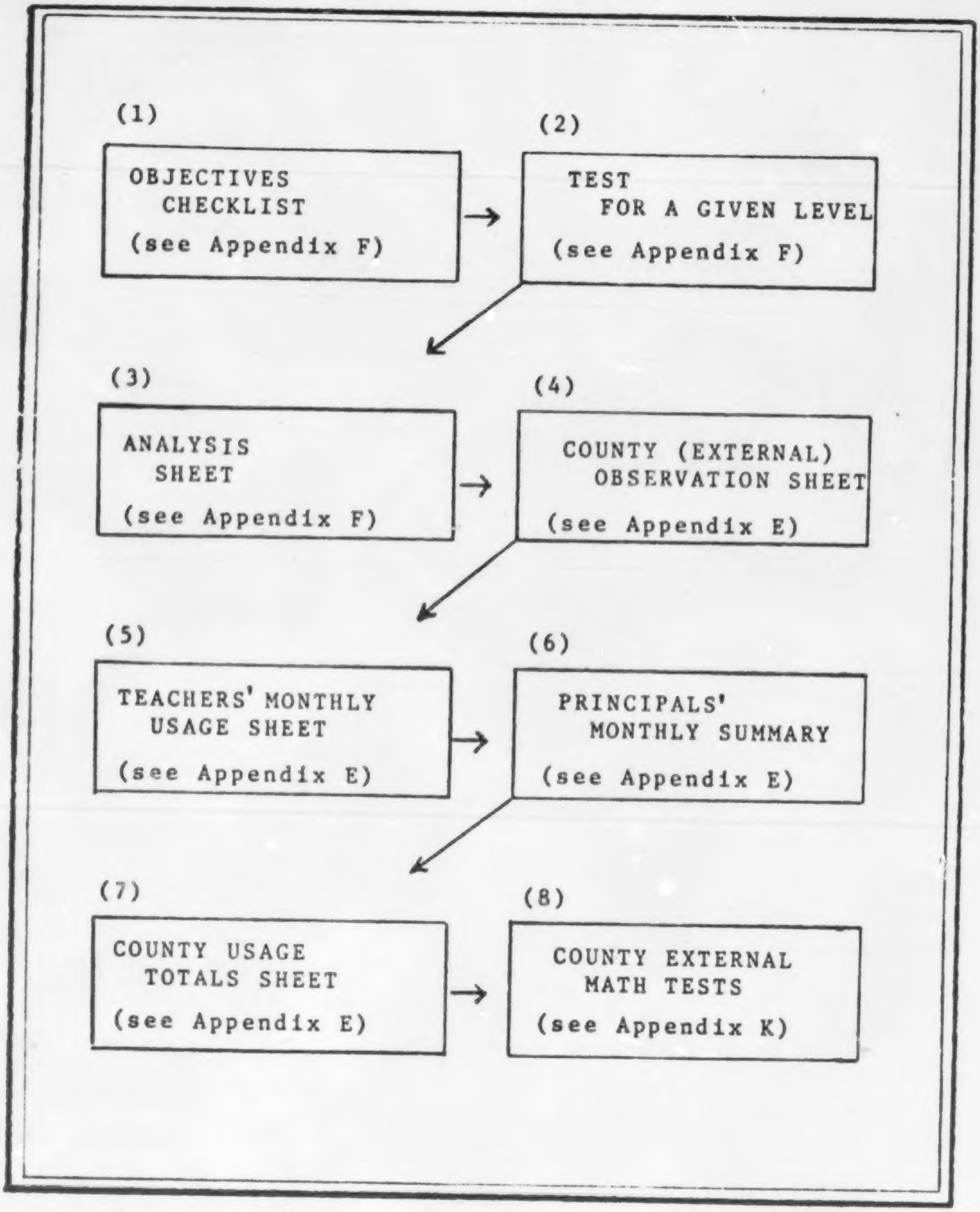
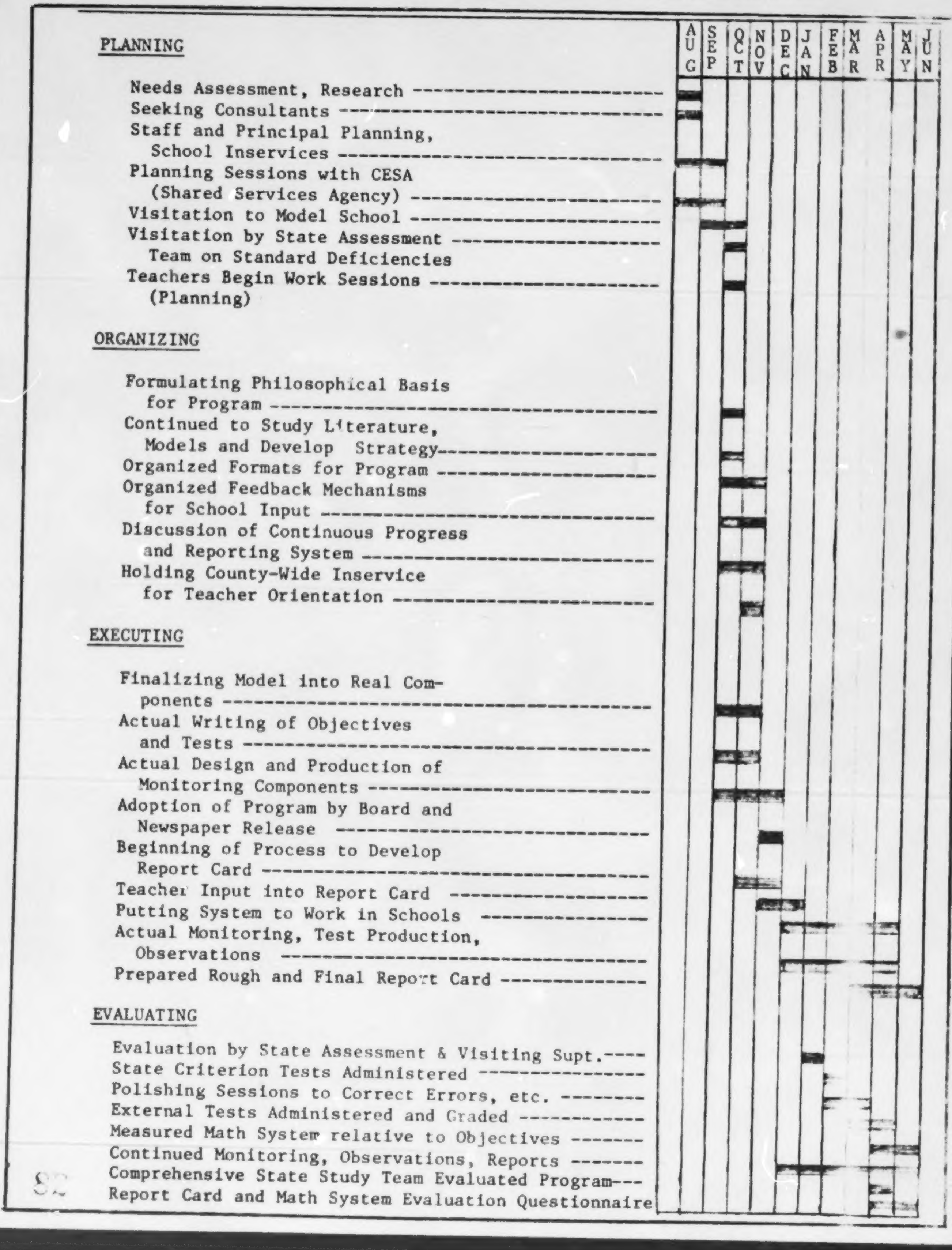


Figure 5. Time-Line Chart Showing Sequence of Math System Activities.



APPENDIX

A

COUNTY BOARD MEMBERS

ROBERT MOORE, CHAIRMAN
DONALD McCALLUM, VICE-CHAIRMAN
DONALD G. KIRKLAND
RAYMOND LUKE
BISKIN MORGAN, M.D.

Coffee County Schools
CHARLES C. MORGAN, JR., SUPT.
P.O. BOX 959
Douglas, Georgia 31533

MR. ROBERT FORNEY
Assistant Superintendent
MR. L. J. HARRELL
Visiting Teacher
MR. CHESTER WILLIAMS
Director of Guidance
MRS. CARROLL McNEILL
Communication Coordinator
MRS. JACK J. TAYLOR
Bookkeeper
MRS. CHARLES ROBERTS
Secretary
MRS. DANNY W. COURSON
Secretary
MRS. KARL K. DOCKERY
Lunchroom Supervisor
WALTER S. RAY, JR.
Federal Programs

October 5, 1976

Dear

Congratulations! You have been selected by your principal to serve as a team member on the Coffee County School System's Mathematics Management System which will give our county uniform Math objectives, test items and accountability for Math 1-6. Our first work day will commence at 8:30, October 12, at the Migrant Center. Dr. Larry Elbrink will serve as one of our consultants.

Please submit a leave request for October 12, 19, and 27 and designate at the request of the Superintendent and with concurrence of the Principal (will not count against any of your days). Also, please bring any materials (textbooks, objectives, etc. that will serve as reference material).

We look forward to working with you in this important endeavor.

Sincerely,

Charles C. Morgan Jr.
Charles C. Morgan
Superintendent

Julian Williams
Julian Williams
Assistant Superintendent

Cary Moore
Cary Moore
Curriculum Director

Chester R. Williams
Chester Williams
Pupil Personnel Coordinator
(Testing)

Note Added: The following dates were added to finish the work: Nov. 5, Nov. 9, March 30, and April 7.

APPENDIX

B

GOALS FOR EDUCATION IN GEORGIA

by the Ten Members of the State Board of Education

We, the members of the State Board of Education, recognize our constitutional and statutory status and responsibilities. Under the law as we read it, we have determined that it is our duty to give direction to those who by law, regulation and custom implement specific programs of education in Georgia. In doing this, philosophy certainly plays a role. Our philosophy is that the school house should have and does indeed have a great impact on the development of each human being. The degree of impact is sometimes determined by circumstances beyond our control. Every child brings to the school house a capacity to be influenced which varies from the capacity brought there by every other child. We do not presume that the school house can or should be a substitute for the home or the church. The things then that we want Georgia children to receive in Georgia classrooms are limited to those things that the public education process can deliver. Another bit of philosophy to which we subscribe is that the word "public" that we use in front of the word "education" cannot and will not be ignored by us. The public schools belong to the people of Georgia. Local school system Boards of Education should be and usually are peculiarly able to respond to the needs and desires of local people and it is our resolve that in every instance where as a practical and legal matter it is possible to do so, that decisions be made and implemented on the local level. So, therefore, all that follows in this document is influenced by our layman's view of what education ought to do and ought not to do to and for a child. Let us explain that this document is being written in the Spring of 1975. Hopefully some objectives will be reached. By the same token altered circumstances may alter goals. With these ideas in mind, we acknowledge that portions of this writing may become obsolete with the passage of time. For now, however, we purpose that no child shall be enrolled in any public school of this state who is not taught:

I. The basics of reading, writing and mathematics, the objective of which is that at every level of educational achievement a pupil will be able to conclusively demonstrate that he possesses the skills necessary to advance him to the next level and that without such demonstration he will not be so advanced.

II. Respect for God, himself, other people, property, environment, authority and institutions.

III. An understanding of the worth of an individual, an appreciation of life and the truth tht one should have faith in a power beyond his or her own resources.

(State Goals --- continued)

IV. A personal appreciation of the concepts of right and wrong, good and evil and the acceptance of the truth that a person must be responsible for the consequences of his own conduct.

V. The ability to assume his proper role as a member of a family and an understanding and respect for the rightful role of other members of his family.

VI. That work is honorable, that common sense dictates respect for all occupations, vocations and professions and that each pupil have exposure to fields of work in which he has special interests and in which he can earn a livelihood if he elects to do so.

VII. The value of proper manners, dress, conduct and speech.

VIII. The ways one can maintain good physical and mental stability and health.

IX. A value system that deemphasizes material possessions as a source of personal happiness.

X. The ability to differentiate between what is true and what is false.

XI. The freedoms a person has in this country as well as those he doesn't enjoy.

XII. The ideas which form the platform on which our form of government rests.

XIII. The heritage that is peculiar to us as a people and the heritage of every race, ethnic group and individual in our society.

XIV. The capitalistic free enterprise system, how it began, how it works, how it has developed and how an individual is part of it.

XV. How to think as an individual and how to think as a member of a group and how to make value judgments in both environments.

XVI. The joy of knowing good music, good literature and good art and the ability to know which is good, which is mediocre and which is bad.

OKEFENOKEE SYSTEMS' GOAL STATEMENTS

The goals of the Okefenokee Area School Systems are to prepare individuals for self-realization, human relationships, economic efficiency, and civic responsibility. These goals are to provide the experience through which each student will:

1. Develop an inquiring mind.
2. Develop the ability to read, speak, and write clearly, efficiently, and effectively.
3. Develop the ability to solve problems.
4. Develop skills in listening and observing.
5. Develop and utilize basic health skills.
6. Contribute to community improvement.
7. Utilize leisure time effectively.
8. Demonstrate an appreciation for the aesthetic.
9. Place primary emphasis on human relationships.
10. Assume the responsibility for self-education.
11. Select rich, sincere, and varied experiences in social life.
12. Demonstrate the ability to work and play with others.
13. Observe the amenities of acceptable social behavior.
14. Practice the observance of acceptable family ideals.
15. Develop homemaking skills.
16. Demonstrate democratic family relationships.
17. Practice behavior which demonstrates support of the family as a social institution.
18. Demonstrate pride in workmanship.
19. Apply a knowledge of the requirements and opportunities for various jobs.
20. Select an occupation.
21. Prepare himself for the world of work.
22. Maintain and practice efficient work habits.
23. Demonstrates an appreciation for the social value of his work.
24. Plan the economics of own life.
25. Demonstrate consumer skills.
26. Take appropriate measures to safeguard his interest.
27. Demonstrate sensitivity to the disparities of human circumstance.
28. Act to correct unsatisfactory conditions.
29. Develop a working knowledge of social structures and social processes.
30. Recognize propaganda and develop defenses against it.
31. Conserve the nation's resources.
32. Measure scientific advance by its contribution to the general welfare.
33. Demonstrate cooperative membership in the world community.
34. Observe the laws of society.
35. Demonstrate economic literacy.
36. Perform civic duties.
37. Demonstrate respect for differences of opinion.
38. Develop positive self-concept.

COFFEE COUNTY PRIORITY GOALS

1. Develop positive self-concept.
2. Develop an inquiring mind.
3. Develop the ability to read, speak, and write clearly, efficiently, and effectively.
4. Develop the ability to solve problems.
5. Prepare himself for the world of work.
6. Observe the laws of society.
7. Plan the economics of own life.
8. Develop and utilize basic health skills.
9. Conserve the nations' resources.
10. Utilize leisure time effectively.

	Level	[illegible]	1st Six weeks	2nd Six weeks	3rd Six weeks	4th Six weeks	5th Six weeks	6th Six weeks
English								
Writing								
Spelling								
Social Studies								
Science								
Music								
Art								
Phys. Ed.								

ATTENDANCE

Marking Period	1	2	3	4	5	6	
Number of Days Present							
Number of Days Absent							

TEACHER AND PARENT COMMENTS

First Six-Week Period
Teacher Comment: ______

Parent Comment: ______

Parent Signature ______

Second Six-Week Period
Teacher Comment: ______

Parent Comment: ______

Parent Signature ______

Third Six-Week Period
Teacher Comment: ______

Parent Comment: ______

Parent Signature ______

Fourth Six-Week Period
Teacher Comment: ______

Parent Comment: ______

Parent Signature ______

Fifth Six-Week Period
Teacher Comment: ______

Parent Comment: ______

Parent Signature ______

Sixth Six-Week Period
Teacher Comment: ______

Parent Comment: ______

Parent Signature ______

PLACEMENT FOR NEXT YEAR (circle)
PRIMARY 1 2 3 INTERMEDIATE 1 2 3 JR HI

PROPOSED ELEMENTARY REPORT CARD

COFFEE COUNTY SCHOOLS

19__ - 19__

NAME ______
LAST FIRST MIDDLE

SCHOOL ______

PRINCIPAL ______

HOMEROOM TEACHER ______

BLOCK/YEAR: PRIMARY 1 2 3
INTERMEDIATE 1 2 3

A WORD TO PARENTS

The Coffee County School System tries to meet the needs of each student in the best possible way - with the resources available to the system. The elementary student is constantly learning and growing. The continuous progress of each student is charted by the teacher and translated to the student and parent by means of a reporting system. This report card is a part of that reporting system.

Please study it carefully. If you do not understand symbols, levels, comments or other marks, please contact the teacher or principal immediately. Understanding is an essential part of the teacher-student parent relationship. The school system is here to help each student.

PROPOSED ELEMENTARY REPORT CARD {side 2}

HOW TO UNDERSTAND THIS REPORT

NON-GRADED OR CONTINUOUS PROGRESS CLASSES

BLOCK: Non-graded classes are divided into Primary and Intermediate Blocks, each of which usually takes three years, though sometimes four years is needed, and occasionally two years. Academic placement recommended by the principal assures the student of the best possible learning situation.

LEVELS: The student progresses along levels. These levels are Pre-1st-6 for the elementary school. They attempt to specify the minimum acceptable levels of performance for the elementary student. These levels correspond largely to the "grade" requirements of strictly graded schools. However, under the Coffee County System, it is possible for a student to be in one year of school, but working at a lower or higher level.

MARKS: A - Excellent Progress at this level for this student
B - Very good progress at this level for this student
C - Adequate progress at this level for this student
D - Inadequate progress at this level for this student
U - Unsatisfactory progress at this level for this student

These marks apply to the student according to the level at which he is currently working. These marks mean that the student is working at a specific level at a specific rate of progress (see marks

C O N D U C T

Teachers report the conduct of the student as :

S - Satisfactory
N - Needs Improvement
U - Unsatisfactory

These letters reflect the behavior and attitude of the student in the categories listed. Good conduct is an essential part of a school program that is responsible for the education of all students.

	1	2	3	4	5	6
Follows directions of the teacher - is attentive and follows through.						
Has good working habits - is organized, brings working materials to class, hands in homework and uses time wisely.						
Shows interest and enthusiasm and strives to have a positive attitude about school.						
Follows rules and regulations of the school.						
Works independently.						
Is well-adjusted to school and gets along well with others.						
Shows respect for self, classmates, teacher and property.						

Comments:

READING

Note: Student has completed blacked-in level (circle - ●) - working on next le

GRADE LEVEL ↓	MAC-MILLAN LEVEL ↓	PROGRESS	1st 6 weeks	2nd 6 weeks	3rd 6 weeks	4th 6 weeks	5th 6 weeks	6th
Pre-R	P-R	0						
Readiness	1	0						
	2	0						
Pre-First	3	0						
	4	0						
	5	0						
First	6	0						
	7	0						
Second	8	0						
	9	0						
Third	10	0						
	11	0						
Fourth	12	0						
Fifth	13	0						
Sixth	14	0						

MATH

GRADE LEVEL ↓	Math LEVEL ↓	PROGRESS	1st 6 weeks	2nd 6 weeks	3rd 6 weeks	4th 6 weeks	5th 6 weeks	6th 6 week
Pre-1st	R	0						
First	1a	0						
	1b	0						
	1c	0						
Second	2a	0						
	2b	0						
	2c	0						
Third	3a	0						
	3b	0						
	3c	0						
Fourth	4a	0						
	4b	0						
	4c	0						
Fifth	5a	0						
	5b	0						
	5c	0						
Sixth	6a	0						
	6b	0						
	6c	0						

FINAL, ADOPTED AND PRINTED REPORT CARD {Cont. on next page}

CONDUCT

Teachers report the conduct of the student as:

S - Satisfactory
N - Needs Improvement
U - Unsatisfactory

These letters reflect the behavior and attitude of the student in the categories listed. A school program responsible for the education of all students recognizes the need for good conduct.

	1	2	3	4	5	6
Follows directions of the teacher - is attentive and follows through.						
Has good working habits - is organized, brings working materials to class, hands in homework and uses time wisely.						
Shows interest and enthusiasm and strives to have a positive attitude about school.						
Follows rules and regulations of the school.						
Works independently.						
Is well-adjusted to school and gets along well with others.						
Shows respect for self, classmates, teacher and property.						

TEACHER AND PARENT COMMENTS

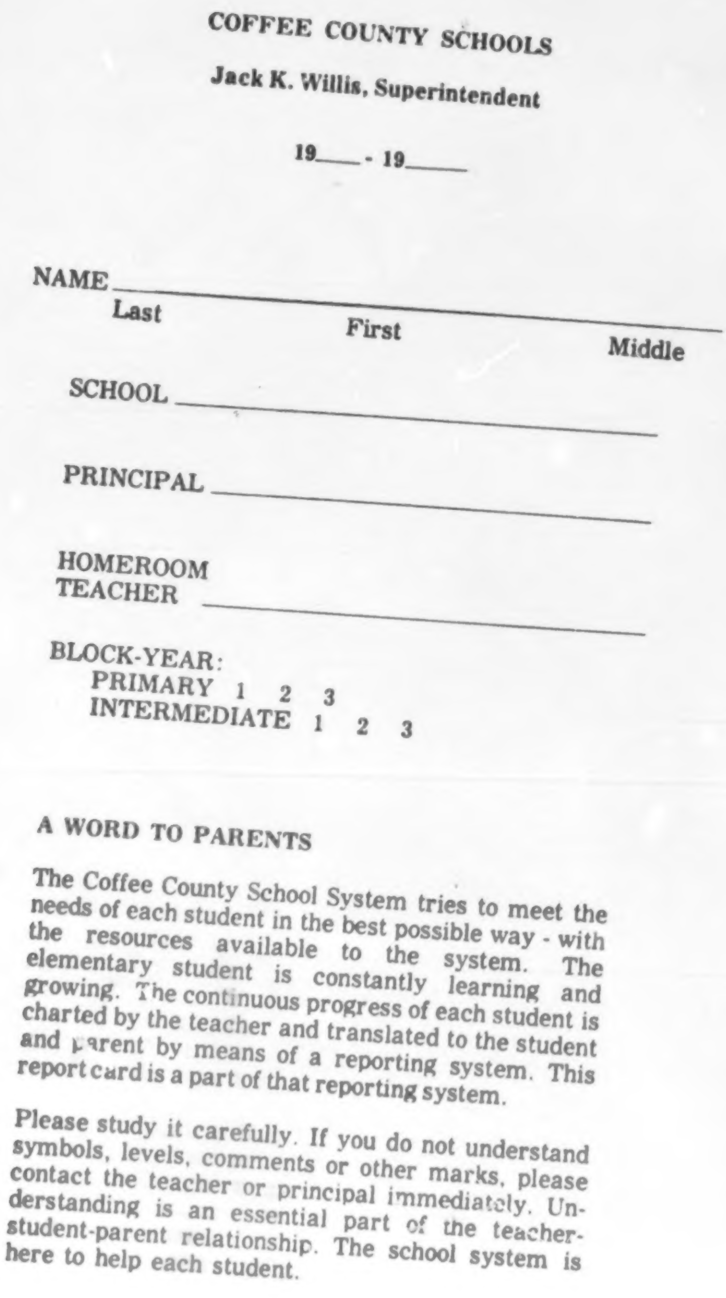
First Six-Week Period
Teacher Comment: ______________________
Parent Comment: ______________________
Parent Signature ______________________

Second Six-Week Period
Teacher Comment: ______________________
Parent Comment: ______________________
Parent Signature ______________________

Third Six-Week Period
Teacher Comment: ______________________
Parent Comment: ______________________
Parent Signature ______________________

Fourth Six-Week Period
Teacher Comment: ______________________
Parent Comment: ______________________
Parent Signature ______________________

Fifth Six-Week Period
Teacher Comment: ______________________
Parent Comment: ______________________
Parent Signature ______________________



COFFEE COUNTY SCHOOLS

Jack K. Willis, Superintendent

19____ - 19_____

NAME ____

Last First Middle

SCHOOL ______________________________________

PRINCIPAL ___________________________________

HOMEROOM TEACHER _______________________________

BLOCK-YEAR:
PRIMARY 1 2 3
INTERMEDIATE 1 2 3

A WORD TO PARENTS

The Coffee County School System tries to meet the needs of each student in the best possible way - with the resources available to the system. The elementary student is constantly learning and growing. The continuous progress of each student is charted by the teacher and translated to the student and parent by means of a reporting system. This report card is a part of that reporting system.

Please study it carefully. If you do not understand symbols, levels, comments or other marks, please contact the teacher or principal immediately. Understanding is an essential part of the teacher-student-parent relationship. The school system is here to help each student.

FINAL, ADOPTED AND PRINTED REPORT CARD, SIDE 2 {Cont. on next page}

HOW TO UNDERSTAND THIS REPORT

NON-GRADED OR CONTINUOUS PROGRESS CLASSES

BLOCK: Non-graded classes are divided into Primary and Intermediate Blocks, each of which usually takes three years, though sometimes four years is needed, and occasionally two years. Academic placement recommended by the principal assures the student of the best possible learning situation.

LEVELS: The student progresses along levels. These levels are Pre-1st–6 for the elementary school. They attempt to specify the minimum acceptable levels of performance for the elementary student. These levels correspond largely to the "grade" requirements of strictly graded schools. However, under the Coffee County System, it is possible for a student to be in one year of school, but working at a lower or higher level.

MARKS: *A - Outstanding Progress at stated level
B - Excellent Progress at stated level
C - Good Progress at stated level
D - Fair Progress at stated level
U - Poor progress at stated level

These marks apply to the student according to the level at which he is currently working. These marks mean that the student is working at a specific level at a specific rate of progress (see marks above).

* A's are awarded only for work done at or above grade level. Other marks may be for work done above, at, or below grade level.

Note: Student has completed blacked-in level (circle ●) (working on next level)

READING

Grade Level	MacMillan Level	Progress	1st 6 Weeks	2nd 6 Weeks	3rd 6 Weeks	4th 6 Weeks	5th 6 Weeks	6th 6 Weeks	
Pre-R	P-R	0							PRIMARY
Readiness	1	0							
	2	0							
Pre-First	3	0							
	4	0							
	5	0							
First	6	0							
	7	0							
Second	8	0							
	9	0							
Third	10	0							
	11	0							
Fourth	12	0							INT.
Fifth	13	0							
Sixth	14	0							

MATH

Grade Level	Math Level	Progress	1st 6 Weeks	2nd 6 Weeks	3rd 6 Weeks	4th 6 Weeks	5th 6 Weeks	6th 6 Weeks	
Pre-1st	R	0							PRIMARY
First	1a	0							
	1b	0							
	1c	0							
Second	2a	0							
	2b	0							
	2c	0							
Third	3a	0							
	3b	0							
	3c	0							
Fourth	4a	0							INTERMED
	4b								
	4c	0							
Fifth	5a	0							
	5b	0							
	5c	0							
Sixth	6a	0							
	6b	0							
	6c	0							

FINAL, ADOPTED AND PRINTED REPORT CARD, SIDE 2 {Cont.}

	Level	Level	1st Six Weeks	2nd Six Weeks	3rd Six Weeks	4th Six Weeks	5th Six Weeks	6th Six Weeks
English								
Writing								
Spelling								
Social Studies								
Science								
Music								
Art								
Phys. Ed.								

ATTENDANCE

Marking Period	1	2	3	4	5	6	Tot.
Number of Days Present							
Number of Days Absent							

PLACEMENT FOR NEXT YEAR (circle)

PRIMARY 1 2 3 INTERMEDIATE 1 2 3 JR. HI

____

____

____

APPENDIX

C

SUMMARIES AND/OR DIRECT QUOTES FROM PORTIONS OF TEACHERS' WRITTEN STATEMENTS ABOUT NEED FOR CHANGE IN REPORTING SYSTEM (ELEMENTARY SCHOOLS)

Teacher 1. "I think the grading system for the elementary grades in Coffee County should be a progress sheet instead of report cards ---"

Teacher 2. (This teacher had researched Wad-Ja-Get?) "Mapleton High had had the traditional system of grading and after all the meetings, large and small, committees appointed to study the school, personnel and students, what would be best for their situation, especially concerned with the student, the traditional system was retained for those who wished to be graded under it, and another system, credit/no credit grading for those who favored a change". (This teacher did not give an opinion on our present system, but offered the above for information.

Teacher 3. "I feel that the grading system in Coffee County should contain letter grading----"

Teacher 4. "I think parents should know how the children behave and how well they work under certain conditions".

Teacher 5. "There are some children, however, who don't deserve a pass but also do not deserve a fail". (The foregoing statement might seem confusing but other statements by the teacher led this writer to believe that she advocated formative reporting comments to improve student performance by some route other than to say 'you passed or you failed a subject'. She seems to refer to continuous progress concepts of reporting progress.)

Teacher 6. "A clear explanation and definite understanding among all teachers, students and parents is needed in any grading system. My suggestion would be to use a "dual" grading system. (1) Grade the child on his academic performance according to achievement on his own working level (with that level clearly understood). (2) Maintain a checklist on skills, such as: effort, study skills, listening skills, social skills, etc. These are very important parts of a child's development that parents need to be aware of ".

Teacher 7. "Each child should know what level he is working on at all times".

Teacher 8. "I feel that the system of grading we have now is not a non-graded program. In order for us to be considered as non-graded we must group and teach a child where he/she is no matter what his age might be. The Math Management System is one step toward meeting the needs for our children in Coffee County".

Teacher 9. "Overall agreement among school systems (sic) and teachers on grades given. Example: If have (sic) slow learners and L.D. and is doing best work that he can - do we give him a "1" even though not doing grade level work?" (writer's comment: the teacher obviously meant "schools" instead of "school systems". Her question is crucial and has reverberated upon many minds of various bent.)

Teacher 10. "The student should not advance to the next grade level without completing the requirements of his present grade level".

Teacher 11. "I feel that the current grading system is not the best one".

Teacher 12. "Include spaces (with enough space) for teacher's comments".

Teacher 13. "If we are to continue with written reports, I would like to see a more objective-oriented system such as that recently developed for math placement".

Teacher 14. "Rather than having a letter or number digit being used (which already is interpreted in so many ways) the checklist could suffice for reporting if the child is mastering skills adequately. If not, the checklist should be held and a mandatory conference with parents should be scheduled. For students below level, parental contact should be a must on a scheduled basis".

Teacher 15. "We could also have a place under each subject to list an effort grade for each child - this might help a parent to understand why a child is making a lower grade".

Teacher 16. "If we continue to use levels to express the stage of the students' progress, I would like the report to indicate the grade level to which the given level is equivalent. I would like parent conferences to be utilized to a greater extent".

Teacher 17. "My research was done in the form of talking to parents and trying to get their feelings on our present system and their suggestions for improvement. Most all parents agreed that the system as is, does not mean a lot. They are confused as to if a "2" really means "Satisfactory" or if the teacher feels that the child has tried and doesn't have the heart to give a lower grade".

Teacher 18. (reference to one opinion from a group reaction) One individual favored a G - S - I - U system (Good, Satisfactory, Needs Improvement, Unsatisfactory) with a short parent conference necessary to receive the card.

Teacher 19. "I am not pleased with (the) present grading system. I feel too much is left up to the judgment of the teacher and all teachers seem to have a different interpretation of (the) grading system".

Teacher 20. Teacher 20 did research on some of the work of Harold Ladas and Neil Postman on "grades". This information will be useful for future reference.

SATILLA SCHOOL

Suggested Report Card Revisions

1. The year in school should be indicated in some way to enable the parents to know which reading levels should be completed in which years.
2. There should be a correlation of grading methods between teachers and schools. The criteria for grading should be understood and followed by all teachers.
3. Change report card at grade 4. The grading of primary students should be different from the grading of intermediate students.
4. There should be different cards for EMR students.
5. Would like to have a conduct grade on the report card.
6. Would like to change grading back to A, B, C, D, & F.

RECOMMENDATIONS FOR COMPLETE IMPLEMENTATION OF NON-GRADED ELEMENTARY PROGRAM IN COFFEE COUNTY SCHOOLS

(1) Add enough rooms or mobile units to first, second and third age-grade centers to enable system to keep students for an additional year, if needed. We would recommend that the moving of the Paulk School facility is long overdue, in that it is the best buy for modern rooms and will deteriorate to nothing if it is not moved in the near future. (Note: The recommendation was followed and the seven-room Paulk School, complete with office suite and cafetorium, is being moved by professional building movers in to the city of Douglas where these centers of need are located. The project is costing the Board of Education $108,750 or about $12 dollars per square foot. Building new rooms would cost at least $25 per square foot in this geographic area.) Example: Add two units to Westside so that two sections of students who are at pre-first levels could be kept at this center for an additional year. Problem - Students are moved along to other age-grade centers regardless of achievement and even though they are grouped in math and reading, they need to be kept an additional year for maturation and intensive work with the lower age-grade teachers.

(2) By late March or early April, age-grade center principals of Eastside, Westside, Central and Satilla (airport) should get together and plot numbers of children that need to be kept at current levels for the next year. Presently, their alternatives might be:

(a) keep section(s) if room(s) is available at a specific center

(b) assign or reassign teachers so that teacher may move with a specific group rather than moving students

(c) make other adjustments according to the Master Plotting that principals and teachers devise, so that teachers, students and materials are correctly placed.

(3) Encourage self-contained schools (Ambrose, Broxton-Mary Hayes, Nicholls and West Green) to continue to coordinate the placement of Primary and Intermediate students, according to achievement and maturation levels.

(4) Encourage curriculum change to provide for the continuous progress concept. Example: the new Science approach makes provision for this direction. We also encourage major efforts in Social Studies to meet this need.

APPENDIX

D

Mr Chester Willis is
willing

The University of Georgia
COLLEGE OF EDUCATION
Athens, Georgia 30602

CENTER FOR
EDUCATIONAL IMPROVEMENT
MORRILL M. HALL, DIRECTOR
PHONE 404-542-1821

86
DIVISION OF INSTRUCTION
RECEIVED
SEP 21 1976

Staff [illegible]

September 15, 1976

Mr. Charles C. Morgan, Jr.
Superintendent
Coffee County Schools
Douglas, GA 31533

Dear Mr. Morgan:

Your letter of September 10, 1976 requesting assistance with your English and Math programs has been received by our office. It is my understanding that a member of my staff, Dr. Bob Bazzle is presently working with your system. I trust that this assistance is proving to be supportive of your efforts to improve your educational program. If we can be of further assistance, please do not hesitate to call on us.

With best wishes and kindest personal regards I am,

Very truly yours,

Morrill

Morrill M. Hall
Professor of Educational
Administration and Director
Center for Educational Improvement

MMH/swh

APPENDIX

E

Elementary Math Program (K-6)
Teachers' Monthly Usage Sheet

School__________ Teacher__________

		Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
Tests		Level___	→ ___	→ ___	→ ___	→ ___	→ ___	→ ___	→ ___	→ ___
Given	→	# Given___	___	___	___	___	___	___	___	___
And		Passed___	___	___	___	___	___	___	___	___
Graded		Reteach___	___	___	___	___	___	___	___	___
		Level___	___	___	___	___	___	___	___	___
	→	# Given___	___	___	___	___	___	___	___	___
		Passed___	___	___	___	___	___	___	___	___
		Reteach___	___	___	___	___	___	___	___	___
		Level___	___	___	___	___	___	___	___	___
	→	# Given___	___	___	___	___	___	___	___	___
		Passed___	___	___	___	___	___	___	___	___
		Reteach___	___	___	___	___	___	___	___	___
		Level___	___	___	___	___	___	___	___	___
	→	# Given___	___	___	___	___	___	___	___	___
		Passed___	___	___	___	___	___	___	___	___
		Reteach___	___	___	___	___	___	___	___	___
		Level___	___	___	___	___	___	___	___	___
	→	# Given___	___	___	___	___	___	___	___	___
		Passed___	___	___	___	___	___	___	___	___
		Reteach___	___	___	___	___	___	___	___	___
bjectives Currently Marked___			→ ___	→ ___	→ ___	→ ___	→ ___	→ ___	→ ___	→ ___
nalysis Sheets Current___			___	___	___	___	___	___	___	___
ew Tasks, Objectives Assigned___			___	___	___	___	___	___	___	___
chr.'s Initials___		Date___	___, ___	___, ___	___, ___	___, ___	___, ___	___, ___	___, ___	___, ___
rin.'s Initia[illegible]___		Date___	___, ___	___, ___	___, ___	___, ___	___, ___	___, ___	___, ___	___, ___
County Office___		Date___	___, ___	___, ___	___, ___	___, ___	___, ___	___, ___	___, ___	___, ___

1. Copy to Office of Instruction
2. Copy to Testing
3. Copy to Principal

88

SYSTEM
(by school)
monthly

Elementary Math Program (K-6)
Principals' Monthly Summary

____
school

	R	1A	1B	1C	2A	2B	2C	3A	3B	3C	4A	4B	4C	5A	5B	5C	6A	6B	6C
Tests Given																			
Passed																			
Reteach																			
Tests Given																			
Passed																			
Reteach																			
Tests Given																			
Passed																			
Reteach																			

COFFEE COUNTY, GA., ELEMENTARY MATH PROGRAM (K-6)

County Usage - Totals Sheet

SCHOOL	JANUARY			FEBRUARY			MARCH			APRIL			MAY		
AMBROSE															
BROXTON															
CENTRAL															
EASTSIDE-WEST-SIDE															
NICHOLLS															
SATILLA															
WEST GREEN															

COLUMN 1 (upper left) Total Tests Given

COLUMN 1 (lower right) Number of teachers from school turning Teachers' Monthly Usage Sheets in

COLUMN 2 (✓) if - Teachers' Sheets updated, signed, returned, copy filed

COLUMN 3 (✓) if - Principals' Monthly Summary recorded, copy to Principal, Testing, and File

Date____________________ Teacher____________________

ELEMENTARY CONTINUOUS MATH PROGRAM

Observer____________________ School____________________

Implementation

yes no

1. ☐ ☐ Objectives check list: ·For all students (names written in)

2. ☐ ☐ Progress checks (⧄, ☒) present on objectives check list.

3. ☐ ☐ Level(s)____________________________presently administered.

4. ☐ ☐ Student awareness of current learning goal (familiarity with objectives, evidence of current work leading toward given objective, self-direction, etc,).

5. ☐ ☐ Teacher plans or expectations for teaching for outcomes.

6. ☐ ☐ Has requisitioned teacher made test(s) to measure these outcomes.

7. ☐ ☐ Scheduled test(s) to student(s) at given level(s) of achievement.

8. ☐ ☐ Given test(s) to student(s) at given level(s) of achievement.

9. ☐ ☐ Plotted weaknesses on analysis sheet for test(s) given.

10. ☐ ☐ Grouping or individualization, if any, growing out of analysis.
Comments:____
____

11. ☐ ☐ Monthly summary sheet due in county office by the 25th. of each month. Enough evidence present to summarize.
Comment:____
____
____

Other Data

12. Any problem adjusting to continuous progress concept?____________________
____
____

13. What do you see as a weakness(es) of the new math program?________________

____

____

Strength(s):______________________________________

____

____

14. Have you encountered any problems with legibility of tests? ___yes, ___no.
Comments:____

____

____

15. Have you encountered any problems with ordering and receiving tests from central location?______________________________________

16. Effect on your morale. ___ good, ___ bad. Comments:________________

____

____

17. Effect on student morale. ___ good, ___ bad. Comments:______________

____

____

18. Have you altered techniques (including ideas, organizing, teaching, reteaching, more or less seat work, etc.) in attempting to use the new approach? ___ yes, ___ no. Explain briefly:____________________

____

____

19. Has the new math system increased your desire and reasons for wanting a change in the reporting system? ___ yes, ___ no. Why?________________

____

____

20. We would like to administer your class or part of it a Control Test (March - same time as State) to help you determine: predictability of your marked objectives, retention span of students, predictability for other criterion-referenced tests (control and State). What levels would you predict you will need (should be same levels as for February)?

____

____

____

APPENDIX

F

COFFEE COUNTY SCHOOLS

DOUGLAS, GEORGIA 31533

AMBROSE ELEMENTARY SCHOOL
BROXTON - MARY HAYES ELEMENTARY & HIGH SCHOOL
CENTRAL ELEMENTARY SCHOOL
COFFEE JUNIOR HIGH SCHOOL
COFFEE SENIOR HIGH SCHOOL
EASTSIDE - WESTSIDE ELEMENTARY SCHOOL
NICHOLLS ELEMENTARY & HIGH SCHOOL
SATILLA ELEMENTARY SCHOOL
WEST GREEN ELEMENTARY SCHOOL

Criterion Referenced Test

Mathematics

Level

3b

1977

CLASSROOM MATHEMATICS: CHECKSHEET 19__

93

LEVEL 3 B SCHOOL ______

TEACHER ______________

A. Sets, Numbers and Numeration														
1. Reads and writes selected numerals for numbers to 9,999.														
2. Counts by threes to 99.														
3. Writes the expanded notation and place value numeral for any number 10 - 999.														
B. Operations 1. Adds three addends of two digits each without renaming.														
2. Adds 2, 3, or 4 digit numbers to 2, 3, or 4 digit numbers without renaming.														
3. Adds numbers to 1000 renaming when necessary.														
4. Subtracts numbers to 1000 renaming when necessary.														
5. Adds amounts of money to $5.00.														
6. Subtracts from amounts of money to $5.00.														
7. Uses repeated subtraction to solve division problems.														
8. Uses vocabulary and symbols of multiplication and division.														
9. Recalls basic multiplication facts.														

94

CLASSROOM MATHEMATICS: CHECKSHEET 19__

LEVEL 3B

SCHOOL ______

TEACHER ______

10. Recalls basic division facts.

11. Applies the concept that division is the opposite of multiplication.

12. Adds to 10,000 renaming once.

13. Subtracts to 10,000 renaming once.

14. Solves word problems using multiplication and division

C. Relations and Functions.
   1. Can determine and extend simple number patterns.

D. Geometry

   1. Identifies point (•), curve (⌒), line segment (•—•), ray (•→), and angle (∟).

   2. Identifies parallel line segments.

   3. Identifies a right angle.

   4. Identifies points on, inside or outside a closed curve.

E. Measurement
   1. Compares units of liquid and linear measure.

   2. Tells time to the nearest 5 minutes.

CLASSROOM MATHEMATICS: CHECKSHEET 19__

LEVEL 3 B

SCHOOL ______

TEACHER ______________

3. Records the measurement of temperature															
4. Uses a calendar to determine dates.															
5. Recognizes days, weeks, months and years as units of measuring time and can convert.															
F. Probability and Statistics															
1. Collects and records data on a simple line graph.															

MATHEMATICS- Level 3 B

Student's Name ______________________________

Date ______________________ Age ______________

School ______________________________

Teacher ______________________________

Skill	Score
A. Sets, Numbers and Numeration	
1. Reading Number Words	3
2. Counting by threes	3
3. Place Value Notation	5
B. Operations	
1. Adding three 2 digit numbers	3
2. Adding two, three, four, digit numbers	3
3. Adding three digit numbers- renaming	2
4. Subtracting three digits- renaming	2
5. Adding money	3
6. Subtracting money	2
7. Dividing using repeated subtraction	2
8. Using symbols for multiplication and division	3
9. Basic Multiplication Facts	3
10. Basic Division Facts	3
11. Relating Division to Multiplication	2
12. Adding 4 digit numbers	1
13. Subtracting 4 digit numbers	1
14. Problem Solving	2

C. Relations and Functions	
1. Number Patterns	3
D. Geometry	
1. Ray, angle, point, curve, line segment	5
2. Parallel line segments	2
3. Right Angles	2
4. On, Outside, Inside	3
E. Measurement	
1. Liquid and linear measure	6
2. Time	2
3. Temperature	1
4. Reading Calendar	2
5. Days, weeks, years	3
F. Probability and Statistics	
1. Line Graph	1
Total	73

SUPERIOR	VERY GOOD	SATISFACTORY	UNSATISFACTORY
73 - 63	62 - 58	57 - 51	50 - 0

Record the correct number of responses for each skill in the column headed score. Total all responses. Circle the appropria box.

Level 3-B

A. Sets, Numbers, and Numeration

1. Write the numeral.

a. two hundred eighty-four ________

b. one thousand six hundred seventy-five ____________

c. five thousand fifty-eight _________

2. Write in this missing numerals.

3, 6, 9, ___, ___, 18, ___

27, 30, ___, 36, ___, 42, ___

___, 87, 90, ___, 96, ___

3. Write the following in Place Value Notation and Expanded Notation.

37 = ___ ones and ___ tens ________ + _____

76 = ___ tens + ___ ones ________ + _____

209 = ___ hundreds + ___ tens + ___ ones _____ + ______ + ______

485 = ___ hundreds + ___ tens + ___ ones _____ + ______ + ______

360 = ___ hundreds + ___ tens + ___ ones _____ + ______ + ______

B. Operations

1. Add:

21	23	65
14	24	13
+32	+42	+11

2. Add:

46	517	4365
+12	+472	+4512

3. Add:

642	384
+129	+542

4. **Subtract:**

$$\begin{array}{r} 546 \\ -218 \\ \hline \end{array} \qquad \begin{array}{r} 738 \\ -472 \\ \hline \end{array}$$

5. **Add:**

$$\begin{array}{r} \$\ .32 \\ +\ .45 \\ \hline \end{array} \qquad \begin{array}{r} \$\ 1.24 \\ +\ \ .53 \\ \hline \end{array} \qquad \begin{array}{r} \$\ 3.65 \\ +\ 2.17 \\ \hline \end{array}$$

6. **Subtract:**

$$\begin{array}{r} \$\ 4.35 \\ -\ 1.20 \\ \hline \end{array} \qquad \begin{array}{r} \$\ 3.16 \\ -\ 1.87 \\ \hline \end{array}$$

7. **Write a division sentence for each repeated subtraction below.**

a.
$$\begin{array}{r} 20 \\ -4 \\ \hline 16 \end{array} \qquad \begin{array}{r} 16 \\ -4 \\ \hline 12 \end{array} \qquad \begin{array}{r} 12 \\ -4 \\ \hline 8 \end{array} \qquad \begin{array}{r} 8 \\ -4 \\ \hline 4 \end{array} \qquad \begin{array}{r} 4 \\ -4 \\ \hline 0 \end{array}$$

_____ ÷ _______ = _______

b.
$$\begin{array}{r} 24 \\ -8 \\ \hline 16 \end{array} \qquad \begin{array}{r} 16 \\ -8 \\ \hline 8 \end{array} \qquad \begin{array}{r} 8 \\ -8 \\ \hline 0 \end{array}$$

_____ ÷ _______ = _______

8. **Circle the right answer.**

a. x means; add, subtract, multiply, or divide.

b. ÷ means; add, subtract, multiply, or divide.

c. 3 x 2 = 6 The product is 3, 3, or 6.

9. **Multiply:**

2 x 4 = _____ 6 x 3 = _____ 5 x 5 = _____

10. **Divide:**

$2\overline{)12}$ $4\overline{)20}$ $6\overline{)42}$

11. Solve the following division problems.

5 x 6 = 30 so 30 ÷ 6 = ☐ and 30 ÷ 5 = ☐

4 x 8 = 32 so 32 ÷ 8 = ☐ and 32 ÷ 4 = ☐

12. 3452
+1730

13. 7595
-2880

14. a. John has 6 books and Mary has 3 times as many books as John. How many books does Mary have? ____________

b. Tommy has 14 marbles which is 2 times as many marbles as Jimmy has. How many marbles does Jimmy have? ____________

C. Relations and Functions

1. Put in the missing numerals.

54, 53, ___, 51, ___, 49, ___

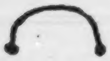
18, ___, 14, ___, 10, ___

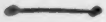
___, 45, ___, 35, 30, ___

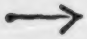
D. Geometry

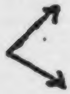
1. Match the following.

ray

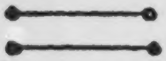
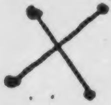
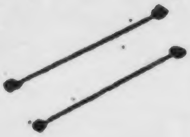
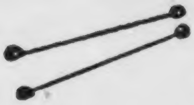
 angle

 point

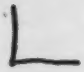
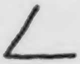
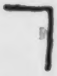
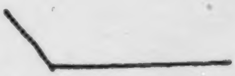
 curve

 line segment

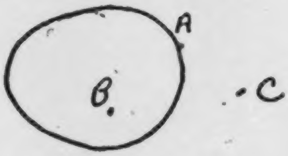
2. Circle the parallel line segments.

3. Circle the right angles.

4. Match the following points with where they are located.



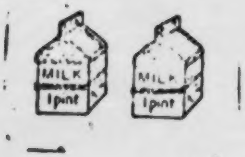
A. outside

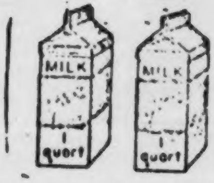
B. inside

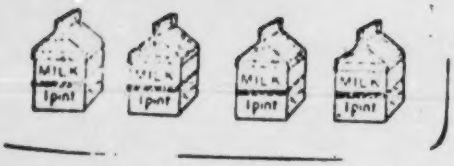
C. on

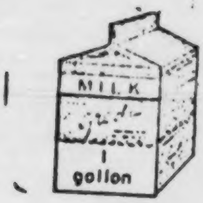
E. Measurement

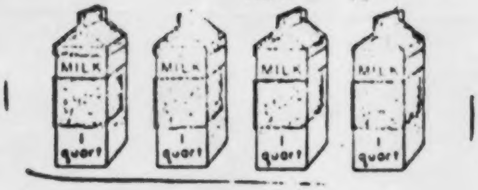
1. Match the following showing equal amounts.

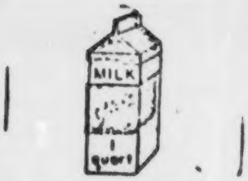












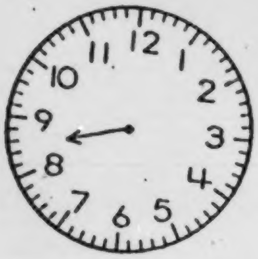
a. Circle the longest.

6 inches or 1 foot

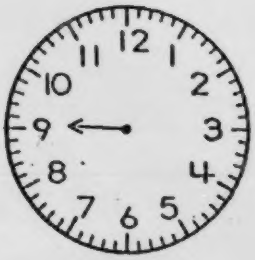
1 meter or 50 centimeters

2 feet or 1 yard

2. Draw the minute hand for each time shown.

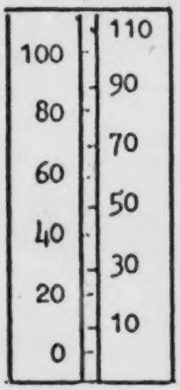


8:35



9:05

3. Draw the thermometer showing the temperature at 70°.



4. From the calendar, determine the following; the date of the first Monday and the number of Tuesdays in the month.

NOVEMBER

Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

First Monday ______________

Number of Tuesdays __________

5. Fill in the correct number.

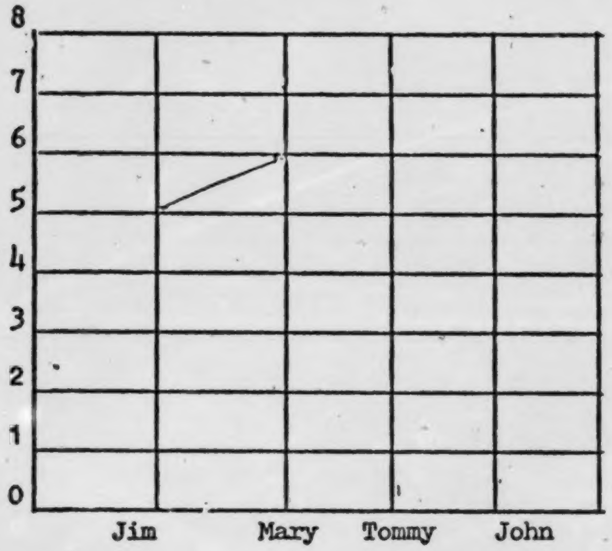
1 week = ________ days

1 year = ________ months

1 year = ________ days

F. Probability and Statistics

1.



From the line graph, complete the line which shows Jim read 5 books, Mary read 6 books. Plot Tommy and John if Tommy read 4 books and John read 7.
Complete the line.

APPENDIX

G

Wednesday, November 24, 1976

TO: All Teachers, Principals, Other Professional Staff and all Teacher Aides

FROM: Cary Moore, Staff Development Coordinator
Julian Williams, Chairman, Staff Development Committee

Our school system has completed work on a system of management for Mathematics (Readiness - 6th. level).

Because this is a continuous progress approach and because so many students, even in the higher grades, lack basic mathematical skills and concepts, we ask that all professional personnel in the county attend this orientation effort. We have tried to get preliminary information to all schools through the respective work session school members but a tight schedule has pushed us pretty well through the whole effort.

Also, a brief presentation (by Mrs. Bessie Dent) will be made on the use and availability of the system's Video Cassette System.

Concluding the program will be comments on the Guidance Project and Kiwanis Career Education Kit (which is available for use by all high schools). Mrs. Lurlyne Smith will present this information.

All Teachers, Principals, and Other Professional Staff

Wednesday, November 24, 1976	8:30 - 9:00	Refreshments
	9:00 -12:00	In Service Session
	Break	Somewhere in middle of session

Place: Coffee High School Lunchroom

Devotional	
Math Management System	
General Overview	County Staff
Background Information	Wilma Lott
Math Objectives and Strands	Mary Flanagan
Student Checklist	June Ricketson
Criterion Tests (includes Analysis Sheet)	Virginia Bryant
Questions Concerning Continuous Progress and Management System for Mathematics	In Service participants may ask questions at this time. Panel will answer.
Video Cassette System	Bessie Dent
Guidance Project and Kiwanis Career Education Kit	Lurlyne Smith

---

Teacher Aides (I.A.P. (C.E.P.), Library, Migrant, Kindergarten)
(Does not include Title I Aides)

Wednesday, November 24, 1976 8:30 - 3:30 In Service Sessions

Please bring a pair of scissors, ruler, several magazines for small pictures, magic markers, pencil, and any ideas of your own to make learning activity-type games.

Place: South Georgia Student Union Building, Douglas, GA 31533

Title I Teachers and Aides

Wednesday, November 24, 1976 1:00 - 3:30 "Establishing Adequate Expectations - Test Data Interpretation and Planning Programs"

Place: Large Conference Room - Migrant Center

INSERVICE EVALUATION SHEET

November 24, 1976

Code:

1-Very low degree
2-Below average degree
3-Moderate degree
4-Substantial degree
5-Great degree

↓ CHECK ONE

MATH PRESENTATION

NEED, POSITIVE CHANGE AGENT

(1) I think the change to the elementary math management system will improve our instructional program to a:

1 ○ 2 ○ 3 ○ 4 ○ 5 ○

RELIABILITY, CORRECT EXPECTATIONS

(2) I think that the new program will be consistent with, and supportive of, criterion-based objectives and test items of the State (State expectations) to a:

1 ○ 2 ○ 3 ○ 4 ○ 5 ○

PERFORMANCE INDICATORS, COORDINATION

(3) I think the new math program will encourage county consistency and the maintaining of minimum standards of performance to a:

1 ○ 2 ○ 3 ○ 4 ○ 5 ○

INDIVIDUAL AND SCHOOL DIFFERENCES, GROWTH

(4) I think individual school inservice on this program would help to a:

1 ○ 2 ○ 3 ○ 4 ○ 5 ○

CLARITY, PURPOSE

(5) I think the presentation of concepts and the mechanics of the new math management system has helped my understanding to a:

1 ○ 2 ○ 3 ○ 4 ○ 5 ○

INDIVIDUAL RESPONSE

(6) I think, in my personal area of responsibility, that this system will help me to a:

1 ○ 2 ○ 3 ○ 4 ○ 5 ○

(7) Any other comments you would like to make concerning this inservice: ____________________

____

Please check appropriate box: K-6 ☐ 7-9 ☐ 9-12 ☐ Other ☐

Please drop Name Tab in one box and Evaluation Sheet in the other box.

DETACH

Inservice, November 24, 1976

NAME ____________________

SCHOOL ____________________

APPENDIX

H

PAGE 106 - NEWSPAPER ARTICLE - "SCHOOLS DEVELOP MATH PROGRAM"
DELETED DUE TO COPYRIGHT RESTRICTIONS.

APPENDIX

I

COFFEE COUNTY, GA., ELEMENTARY MATH PROGRAM

EVALUATION SHEET - Monitoring Math Management
(using Observation Sheet)

Teacher Code #	Observer	1	2	3	4	5	School	Date Accomplished	Effectiveness 1	2	3	4	5	Comments
01	MOORE	✓		✓			BROXTON	2-15-77	1	[✓ 2]	3	4	5	JUST GETTING PROGRAM STARTED
02	MOORE	✓	✓	✓	✓	✓	BROXTON	3-15-77	1	2	3	4	[✓ 5]	P- HELPS IN PARENT CONFERENCES N. NOT ENOUGH "MEASUREMENT"
03	J. Williams						BROXTON	2-15-77	[✓ 0] 1	2	3	4	5	EVIDENTLY LACKING IN INSERVICE EXPERIENCE.
04	J. WILLIAMS						BROXTON	2-15-77	[✓ 0] 1	2	3	4	5	Same as #03
05	J. WILLIAMS						BROXTON	2-15-77	[✓ 0] 1	2	3	4	5	Same as #03
06	J. WILLIAMS						BROXTON	2-15-77	[✓ 0] 1	2	3	4	5	Same as #03
07	J. WILLIAMS						BROXTON	2-15-77	[✓ 0] 1	2	3	4	5	Same as #03
08	MOORE	✓	✓	✓	✓	✓	CENTRAL	2-9-77	1	2	3	4	[✓ 5]	P- SHOWS WHAT TO TEACH N. No "fractions" at 3rd leve
09	MOORE	✓	✓	✓	✓	✓	CENTRAL	2-9-77	1	2	3	4	[✓ 5]	P- Wish we had all along N- A few mistakes
10	MOORE	✓	✓	✓	✓	✓	CENTRAL	2-9-77	1	2	3	4	[✓ 5]	P- Great need for it. N- Correct some error
11	HANSHAW			✓	✓	✓	CENTRAL	2-9-77	1	2	[✓ 3]	4	5	P. Sets realistic objective N- A few mistakes
12	HANSHAW	✓	✓	✓	✓	✓	CENTRAL	2-9-77	1	2	3	4	[✓ 5]	P. Diagnose strengths, weakne N- How do we define "mastery
13	HANSHAW	✓	✓	✓	✓	✓	CENTRAL	2-9-77	1	2	3	4	[✓ 5]	P- slow students now interes N. Legibility of tests
14	HANSHAW	✓	✓	✓	✓	✓	CENTRAL	2-9-77	1	2	3	4	[✓ 5]	P- Systematically covers an N- Legibility of tests
15	HANSHAW	✓	✓	✓	✓	✓	CENTRAL	2-9-77	1	2	3	4	[✓ 5]	P. Pick up "missed" conte N- Legibility of tests
16	J. WILLIAMS	✓	✓	✓	✓	✓	CENTRAL	2-9-77	1	2	3	4	[✓ 5]	P. Good effect on morale N- Few mistakes

1 (✓) Objectives Checklist for all students 2 (✓) Progress checks on students 3 (✓) Level for student specified

4 (✓) Requisitioned and/or scheduled tests 5 (✓) Given tests

COFFEE COUNTY, GA., ELEMENTARY MATH PROGRAM

EVALUATION SHEET - Monitoring Math Management (using Observation Sheet)

Teacher Code #	Observer	1	2	3	4	5	School	Date Accomplished	Effectiveness 1	2	3	4	5	Comments
17	J. Williams			✓	✓	✓	CENTRAL	2-9-77	1	2	[✓ 3]	4	5	P. Good idea N. Some mistakes.
18	J. Williams	✓	✓	✓	✓	✓	CENTRAL	2-9-77	1	2	3	4	[✓ 5]	P. Motivation for Students. N. Minor transition problems.
19	J. Williams	✓	✓	✓	✓	✓	CENTRAL	2-9-77	1	2	3	4	[✓ 5]	P. Like Skills Checklist N. Some pressure.
20	J. Williams	✓	✓	✓	✓	✓	CENTRAL	2-9-77.	1	2	3	4	[✓ 5]	P. Reinforces correct grouping N. Need materials conc. objectives
21	J. Williams	✓	✓	✓	✓	✓	CENTRAL	2-9-77	1	2	3	4	[✓ 5]	P. Good to look at ourselves. N. Materials needed
22	J. Williams						CENTRAL	2-16-77	[✓ 0] 1	2	3	4	5	Says needs more time to implement
23	J. Williams	✓	✓	✓	✓	✓	CENTRAL	2-16-77	1	2	3	4	[✓ 5]	P. Real good for 4th level N. Legibility of tests.
24	J. Williams	✓	✓	✓	✓	✓	CENTRAL	2-16-77	1	2	3	4	[✓ 5]	P. Shows weaknesses + progress N. Some mistakes.
25	J. Williams	✓	✓	✓	✓	✓	CENTRAL	2-16-77	1	2	3	4	[✓ 5]	P. Gets students moving N. Some extra paperwork
26	Hanshaw	✓	✓	✓	✓	✓	CENTRAL	3-4-77	1	2	3	4	[✓ 5]	P. Identifies need N. Some revision needed
27	Hanshaw	✓	✓	✓	✓	✓	CENTRAL	3-4-77	1	2	3	4	[✓ 5]	P. Keeps everything coordinated N. Textbook pages "pegged" to guide
28	Hanshaw	✓	✓	✓			CENTRAL	3-4-77	1	2	[✓ 3]	4	5	
29	Hanshaw	✓	✓				CENTRAL	3-4-77	1	[✓ 2]*	3	4	5	* Teacher had just taken over class.
30	Hanshaw	✓	✓	✓	✓	✓	CENTRAL	3-5-77	1	2	3	4	[✓ 5]	P. Students function better N. Need key
31	Hanshaw			✓	✓	✓	CENTRAL	3-5-77	1	2	[✓ 3]	4	5	P. Students get success N. Too much to do.
32	Hanshaw	✓	✓	✓	✓	✓	CENTRAL	3-5-77	1	2	3	4	[✓ 5]	P. Shows needed areas N. Less success. at level 3

1 (✓) Objectives Checklist for all students   2 (✓) Progress checks on students   3 (✓) Level for student specified

4 (✓) Requisitioned and/or scheduled tests   5 (✓) Given tests

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COFFEE COUNTY, GA., ELEMENTARY MATH PROGRAM

EVALUATION SHEET - Monitoring Math Management
(using Observation Sheet)

Teacher Code #	Observer	1	2	3	4	5	School	Date Accomplished	Effectiveness 1	2	3	4	5	Comments
33	HANSHAW				✓		CENTRAL	3-5-77	[✓ 1]	2	3	4	5	Needs some more time.
34	HANSHAW	✓	✓	✓	✓	✓	CENTRAL	3-5-77	1	2	3	4	[✓ 5]	P. Wallchart helps N. None.
35	HANSHAW	✓	✓	✓	✓	✓	CENTRAL	3-5-77	1	2	3	4	[✓ 5]	P. Helps transfer students N. Need more "prepping"
36	MOORE				✓		NICHOLLS	3-7-77	[✓ 1]	2	3	4	5	Teacher needs more help.
37	MOORE				✓		NICHOLLS	3-7-77	[✓ 1]	2	3	4	5	More help and motivation needed
38	MOORE				✓		NICHOLLS	3-7-77	[✓ 1]	2	3	4	5	Just getting started.
39	MOORE						NICHOLLS	3-7-77	[✓ 0] 1	2	3	4	5	Needs help and motivation.
40	MOORE	✓		✓			NICHOLLS	3-7-77	1	[✓ 2]	3	4	5	Just getting underway.
41	MOORE	✓	✓	✓	✓		NICHOLLS	3-7-77	1	2	3	[✓ 4]	5	Getting ready to test
42	MOORE	✓	✓	✓	✓	✓	NICHOLLS	3-10-77	1	2	3	4	[✓ 5]	P-Good program N. Needs "metric" instruments
43	MOORE			✓	✓		NICHOLLS	3-7-77	1	[✓ 2]	3	4	5	Needs wall chart.
44	J. WILLIAMS	✓	✓	✓			SATILLA	3-4-77	1	2	[✓ 3]	4	5	Need materials to meet there needs.
45	J. WILLIAMS						SATILLA	3-4-77	* 1	2	3	4	5	* Experimental Program Being Carried on here
46	J. WILLIAMS	✓	✓	✓	✓	✓	SATILLA	3-4-77	1	2	3	4	[✓ 5]	Why do we need external tests?
47	MOORE	✓	✓	✓	✓	✓	West Green	2-8-77	1	2	3	4	[✓ 5]	Eliminates hit + miss method
48	MOORE	✓	✓	✓	✓	✓	WEST GREEN	2-8-77	1	2	3	4	[✓ 5]	Gives new teacher direction

1 (✓) Objectives Checklist for all students 2 (✓) Progress checks on students 3 (✓) Level for student specified

144 (✓) Requisitioned and/or scheduled tests 5 (✓) Given tests

COFFEE COUNTY, GA., ELEMENTARY MATH PROGRAM

EVALUATION SHEET - Monitoring Math Management
(using Observation Sheet)

Teacher Code #	Observer	1	2	3	4	5	School	Date Accomplished	Effectiveness 1 2 3 4 5	Comments
49	J. Williams	✓	✓	✓	✓	✓	West Green	2-8-77	1 2 3 4 [✓ 5]	P. Delivers Organization N- Need orientation
50	J. Williams	✓	✓	✓	✓	✓	West Green	2-8-77	1 2 3 4 [✓ 5]	P. Diagnosis for individuals N- More work
51	J. Williams	✓	✓	✓	✓	✓	West Green	2-8-77	1 2 3 4 [✓ 5]	Can plan + organize better
52	J. Williams	✓	✓	✓	✓	✓	Nicholls	3-7-77.	1 2 3 4 [✓ 5]	Needs better printing for first graders
53	Moore	✓	✓	✓	✓	✓	Eastside	3-4-77	1 2 3 4 [✓ 5]	
54	Moore	✓		✓	✓	✓	Eastside	3-4-77	1 2 3 [✓ 4] 5	
									1 2 3 4 5	
									1 2 3 4 5	
									1 2 3 4 5	
									1 2 3 4 5	
									1 2 3 4 5	
									1 2 3 4 5	
									1 2 3 4 5	
									1 2 3 4 5	
									1 2 3 4 5	
									1 2 3 4 5	

1 (✓) Objectives Checklist for all students 2 (✓) Progress checks on students 3 (✓) Level for student specified

4 (✓) Requisitioned and/or scheduled tests 5 (✓) Given tests

APPENDIX

J

PAGE 111 - NEWSPAPER ARTICLE - "TEACHERS RATE NEW PROGRAM CARD" DELETED DUE TO COPYRIGHT RESTRICTIONS.

School____________________

EVALUATION

(Please do not sign - we would like response to be very honest)

CONFIDENTIAL - Fold and return to Principal's Office

Elementary Math Management System

1. I personally like the Elementary Math Management System (teacher-made objectives, tests, diagnostic sheets, etc.).

   ☐ 1. Do not care for it at all.
   ☐ 2. Like only to a small degree.
   ☐ 3. Better to have it than not have it.
   ☐ 4. Like it much.
   ☐ 5. Like it very much.

2. I have personally used the Elementary Math Management System to a:

   ☐ 1. Very small degree.
   ☐ 2. Small degree.
   ☐ 3. Moderate degree.
   ☐ 4. Great degree.
   ☐ 5. Very great degree.

3. I feel that I understand the value of a central, county-wide, consistent, systematic management system for mathematics for elementary students to:

   ☐ 1. A very small degree.
   ☐ 2. A small degree.
   ☐ 3. An adequate degree.
   ☐ 4. A great degree.
   ☐ 5. A very great degree.

4. I feel in-service and communications about the program has given me adequate understanding about the math management program and how to operate it:

☐ 1. Absolutely not.

☐ 2. To a very small degree.

☐ 3. To a moderate degree.

☐ 4. Yes, helpful to a great degree.

☐ 5. Yes, helpful to a very great degree.

5. I feel that my students' test-taking abilities and "ease of taking tests" have been helped by the math system tests:

☐ 1. No, not at all.

☐ 2. Very little.

☐ 3. Yes, to a moderate degree.

☐ 4. Yes, to a great degree.

☐ 5. Yes, to a very great degree.

6. Overall, I would like to see the Elementary Math Management System continued in the schools:

☐ 1. Absolutely not.

☐ 2. Not very much.

☐ 3. Yes, with much improvement though.

☐ 4. Yes, really with very little improvement.

☐ 5. Yes, as it is - do not change at all (except keep up-dating math keys, taking out typographical errors, etc.).

7. I would like for us to initiate an Elementary Language Arts System next year in the way that we have approached math this year:

☐ 1. No, I don't want us to do this at all.

☐ 2. Not very much.

☐ 3. Yes, it would be better than what we're doing.

☐ 4. Yes, it would be very good.

☐ 5. Yes, it would be a very great help.

EVALUATION SCHOOL ____________________

REPORT CARD

1. I think the math system's continuous program levels - (R through 6C) on the new report card (proposed) will be:

☐ Please check this block if you were involved with the Elementary Math Management System.

☐ 1. No help at all.
☐ 2. Will not help as much as what we have now.
☐ 3. Will help more than what we have now.
☐ 4. Will help to a great degree.
☐ 5. Will help to a very great degree.

2. I am in favor of changing the 9 weeks reporting period to 6 weeks:

☐ 1. No, I am not at all in favor of this.
☐ 2. Not very much.
☐ 3. Yes, would be some better.
☐ 4. Yes, would be much better.
☐ 5. Yes, would be very much better.
☐ 6. (None of above) I would like: ____________________

____

____

____

____

Page 2 -- Report Card Evaluation

3. I like the way "grades" are reported on the new card (proposed):

☐ 1. No, I like the old way - 1, 2, 3, 4.
☐ 2. Not very much.
☐ 3. Yes, better than what we have.
☐ 4. Much.
☐ 5. Very much.
☐ 6. (None of above) I would like: ____________________

____

____

4. I would like to make these other suggestions regarding a new report card: (list, if any)

1. ____________________
2. ____________________

5. Overall, I like the proposed report card:

☐ 1. Not at all.
☐ 2. Not very much.
☐ 3. Yes, but with major corrections.
☐ 4. Yes, with minor corrections.
☐ 5. Yes, leave it essentially as it is.

APPENDIX

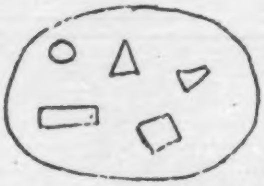
K

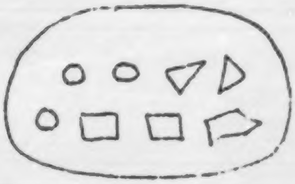
Name ______________

School ______________

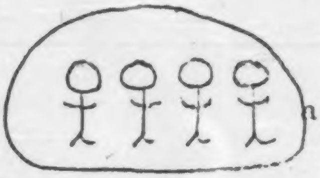
External Control Test R-3

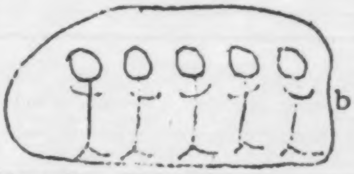
1. Put X on the set with the most members.


a.

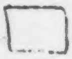

b.

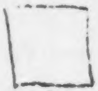
Circle the set with the fewest members.


a.


b.

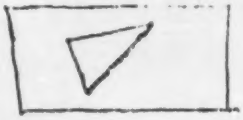
2. Put an X on the middle-sized square.

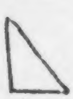

a.


b.

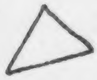
c.

3. Put a ✓ on the picture that is different than the one in the box.




a.

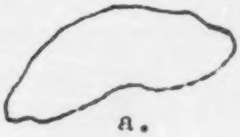
b.

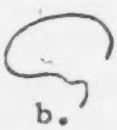

c.

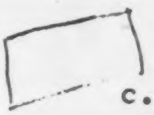
4. Draw objects in the circle to make number sentence correct.

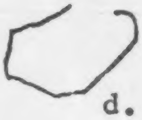
2 + 3 = 5

5. Place an X on the closed figures.


a.


b.


c.


d.

6. Write the correct numeral in each ☐.

14 is ☐ tens and ☐ ones

7. Write the correct numeral in each ☐.

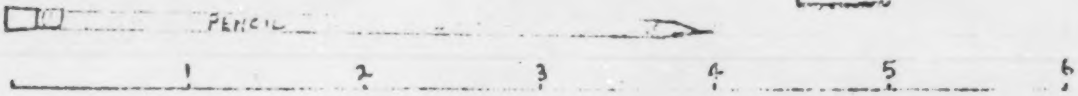
7 + 2 = ☐ 6 + 3 = ☐ 5 - 2 = ☐

8 - 4 = ☐

8. Fill in the ◯ with the correct symbol >, <, =

a. 47 ◯ 23 b. 78 ◯ 99 c. 8 ◯ 8

9. Write a numeral for the number of inches. ☐



10. Jeff has 11 marbles. He gives 5 marbles to Joe. How many marbles does he have left? ____________

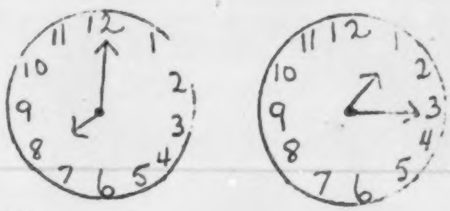
11. Subtract:

67 - 33 40 - 10 29 - 13 54 - 28

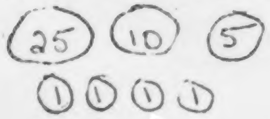
12. Add.

4 + 3 + 6 58 + 26

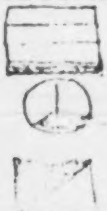
13. What time is given on each clock?



14. Circle the set of coins for the price.



15. Draw a line from the fraction to the figure which has that portion shaded.



a. $\frac{1}{3}$

b. $\frac{1}{2}$

c. $\frac{1}{4}$

16. Match the following measurement with the object being measured.

_______ meter a. liquid

_______ liter b. length

_______ gram c. weight

17. Solve:

3 X 3 = ____ 5 X 4 = ____

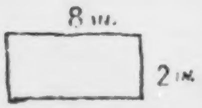
$2\overline{)18}$ $9\overline{)45}$

18. Put in the missing numerals.

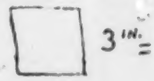
47, 43, 39, _____, 31, _____

17, 20, 23, _____, _____, 32

19. Determine the perimeter of the rectangle and the square.



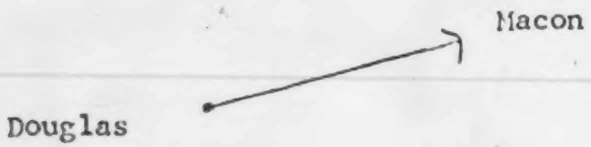
= ____



= _____

20. How far is it from Douglas to Macon?

1 inch = 100 miles



Name ______________________

School ______________________

EXTERNAL CONTROL TEST 4-6

1. Add:

$$\begin{array}{r} 267 \\ +348 \\ \hline \end{array} \qquad \begin{array}{r} 17642 \\ +\ 3576 \\ \hline \end{array}$$

Subtract:

$$\begin{array}{r} 672 \\ -123 \\ \hline \end{array} \qquad \begin{array}{r} 7890 \\ -\ 689 \\ \hline \end{array}$$

2. What in dollars and cents are 3 quarters and 7 dimes?

____

3. Round to the nearest hundreds and estimate difference.

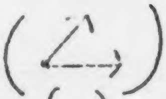
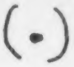
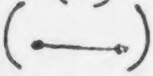
$$\begin{array}{r} 387 \\ -121 \\ \hline \end{array}$$

____

____

____

4. Identify:

1. 
2. 
3. 

a. line segment

b. angle

c. point

5. Circle the plane.

a. ball   b. top   c. desk   d. sky

6. A quadrilateral is a figure that has:

a. 2 sides   b. 3 sides   c. 4 sides

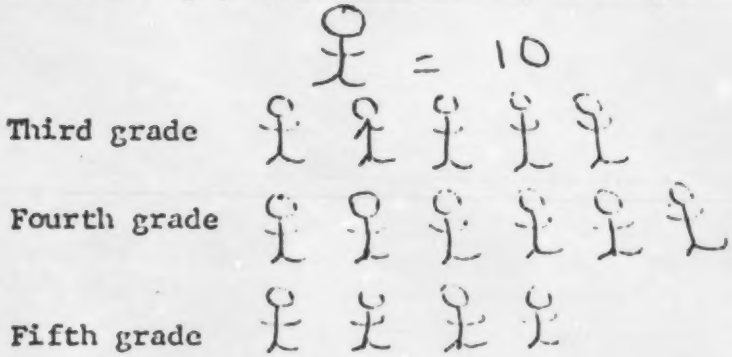
7. Add:

$$\begin{array}{l} 4 \text{ hours } 7 \text{ minutes} \\ 2 \text{ hours } 48 \text{ minutes} \\ \hline \end{array}$$

a. 6 hours 55 minutes   b. 7 hours 2 minutes

c. 7 hours 15 minutes

8. Number of pupils in the third, fourth, and fifth grade.



How many pupils are in the third grade? ____________

How many pupils are in the fourth grade? ____________

How many pupils are in the fifth grade? ____________

9. The key maker stored 8 brass, 4 copper, and 1 aluminum key in a container. What was his chance of drawing:

a brass key ____________

an aluminum key ____________

a copper key ____________

10. Solve and rename answers in simplest form:

$$\text{a.}\ \begin{array}{r} \frac{2}{3} \\ +\frac{1}{2} \\ \hline \end{array} \qquad \begin{array}{r} 1\frac{5}{6} \\ +\ 2\frac{3}{5} \\ \hline \end{array} \qquad \begin{array}{r} \frac{4}{5} \\ -\frac{1}{3} \\ \hline \end{array} \qquad \begin{array}{r} 4\frac{6}{7} \\ -\ 2\frac{1}{5} \\ \hline \end{array}$$

11. Solve the following:

a. Mr. Jones operates a pulpwood business. He can cut down 250 trees per hour. How many trees can he cut down in 5 hours? ____________________

b. Jane went shopping on Wednesday and spent $79.46. Jane went shopping on Friday and spent $92.38. How much did Jane spend on both days? ________________

12. Circle all composite numbers and underline all prime numbers.

4, 13, 16, 11, 2, 7, 24, 10, 8, 9

13. Solve each of the following:

a. $\left[(6 \times 2)\right] - 6 =$ 15

b. $(7 - 3) + 5 =$

c. $[12 - (4 + 3)] + 4 =$

14. List all the factors of the following.

a. 18 b. 56 c. 45

15. Solve each applying the Commutative Property of Multiplication.

a. $4 \times 9 = n \times 4$ b. $6 \times 8 = 8 \times n$ c. $3 \times 7 = n \times 3$

n= ________ n= ________ n= ________

16. Multiply:

a. $\begin{array}{r} 743 \\ \underline{\times\ 6} \end{array}$ b. $\begin{array}{r} 659 \\ \underline{\times\ 47} \end{array}$ c. $\begin{array}{r} 847 \\ \underline{\times 435} \end{array}$

17. Solve:

a. $6\overline{)453}$ b. $38\overline{)4789}$ c. $49\overline{)614}$

18. Find the average of each set of numbers.

a. (1,3,5,7,9) b. (32,36,45,54,64,72)

____________ ____________

19. Solve and rename answers in simplest form.

a. $\frac{4}{5} \times \frac{2}{3}$ b. $\frac{7}{8} \times 6$ c. $7\frac{1}{2} \times 3$

20. Perform the operation indicated:

a. $\frac{7}{8} \div \frac{2}{3}$

b. $9 \div \frac{1}{3}$

c. $4\frac{2}{5} \div 1\frac{1}{3}$

21. Perform the operation indicated:

a. 14.6 + 24.3 = __________

b. 7.8 - 2.9 = __________

c. .46 x 1.7 = __________

d. 3.9 x 6.3 = __________

22. Find the number named by each expression:

a. 16% of 42 __________ c. 75% of 28 __________

b. 40% of 50 __________ d. 80% of 300 __________

23. Tell the number named by each numeral below.

a. 8^2 b. 3^4

24. Solve each sentence.

a. $-36 \div {}^{-}9 =$ ________ c. $-7 + {}^{+}4 =$ ________

b. ${}^{+}9 - {}^{-}3 =$ ________ d. $-8 \times {}^{+}5 =$ ________

25. Match the following:

a.	_____ Measures exactly 90 degrees	1. Obtuse angle
b.	_____ Measures greater than 90 degrees	2. Acute angle
c.	_____ Measures less than 90 degrees	3. Right angle

SCALES FOR EXTERNAL TESTS *

Readiness - 3 Test (External)		4-6 Test (External)	
Number Right	**Scale**	**Number Right**	**Scale**
1-3	Readiness	1-2	4a
4-5	1a	3-6	4b
6-7	1b	7-9	4c
8-9	1c	10-11	5a
10-11	2a	12-20	5b
12-14	2b	21-22	5c
15	2c	23	6a
16	3a	24	6b
17-18	3b	25	6c
19-20	3c		

* It is now observed that these tests should consist of more items, have greater "spans" for designating achievement levels, and have "overlap" between the two tests. These instruments will definitely undergo drastic revision.

CONTROL R-3 (EXTERNAL)	K 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	RAW SCORE	LEV. EQUIV	R-3 ITEM ANALYSIS
	1/3 1/2				1/3 1/2	1/2 1/2	1/4 1/4 1/4 1/4	1/3 1/3 1/3			1/4 1/4 1/4 1/4	1/2 1/2	1/2 1/2		1/3 1/3 1/3	1/3 1/3 1/3	1/4 1/4 1/4 1/4	1/4 1/4 1/4 1/4	1/2 1/2				
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CONTROL 4-6
(EXTERNAL)
ITEM ANALYSIS

125

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	RAW SCORE	LEV.
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APPENDIX

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BOARD OF EDUCATION

PEARSON, GEORGIA 31642

February 18, 1977

Mr. Julian Williams, Ass't Supt.
P.O. Box 1227
Douglas, Georgia 31533

Dear Mr. Williams:

I enjoyed my visit to your school system on February 16, 1977.

From my observations you are completely fulfilling the requirements of the time-line schedule listed in your proposal for the development and implementation of the Math Management System for grades K-6 in your school system.

Your objectives and teacher-made tests seem well developed (Levels R-6c), your monitoring procedures seem to be carried out adequately (from the samples I observed), and you seem to have (or will have) all the potential for evaluating your efforts (test score comparisons, etc.).

I shall look forward to reviewing your work again at its completion.

Sincerely,

James T. Morris

James T. Morris, Supt.
Atkinson County Schools
Pearson, Georgia 31642

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